THE ENGINEERING AND MINING JOURNAL AND COAL

Entered at the Post-Office of New York, N. Y., as Second-Class Mail Matter.

VOL. LX. DECEMBER 28. No. 26.

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THE SCIENTIFIC PUBLISHING CO., Publishers.

SUBSCRIPTIONS to THE ENGINEERING AND MINING JOURNAL are PAYABLE IN ADVANCE. Price: For the United States, Mexico and Canada, $5 per annum; $2.50 for six months; all other countries in the Postal Union, $7.

The address slip on the paper will show date of expiration of subscription. Subscribers wishing their address changed will please give the name of the old post-office as well as the new one.

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ADVERTISING RATES furnished on application.

REMITTANCES should always be made by Bank Drafts, Post-Office Orders or Express Money Orders on New York, payable to THE SCIENTIFIC PUBLISHING CO.

THE SCIENTIFIC PUBLISHING COMPANY.

OFFICERS:
R. P. ROTHWELL, Pres. & Gen'l Mang.
SOPHIA BRAEUNLICH, SEC'Y & TREAS.

P. O. BOX 1833.
253 Broadway, New York.
Cable Address: "Rothwell, New York. Use McNeill's Code.

LONDON OFFICE 20 Bucklersbury Rooms 366 and 367), London. E. C., England. Edward Walker, Manager.

CHICAGO OFFICE: Monadnock Building, Room 737.
DENVER OFFICE: Boston Building, Room 206.

CONTENTS.

	Page.
The Headquarters of the Mining Industry	605
Profit in War Scare	605
Mineral Output of Leadville for 1895	605
Dullness of London Copper Market	605
Value of Canada to United States	605
The Harvey Patent Case	605
The War Message and Its Results	606
The Calcic Carbide Acetylene Gas Bubble	606
New Publications	607
Books Received	607
Mineral Industry	607
Gold in Nevada — Dan De Quille	607
The Calcium Carbide Gas Bubble — Geo. F. Seward	607
The Acetylene Mystery	607
Reduction Works of the Compania Huanchaca De Bolivia	608
Coal in Colombia	609
The Treatment of Australian Ores — John Plummer	610
Mineral Resources on the Southern Railway from Alabama to Birmingham — Wm. M. Brewer	610
* The Zinc Mines at Aurora, Missouri — H. K. Landis	611
Coal in Western North Carolina — William B. Phillips	612
* A New Design for Sinking Pumps	614
Recent Decisions Affecting the Mining Industry	615
Patents Relating to Mining and Metallurgy	615
Personal, Obituary, Societies, Technical Schools, Industrial Notes	616
Notes: Mining Schools in Russia, 613—The German Iron Industry, 614—Mexican International Exposition, 614—Iron and Steel in Sweden, 614—Tadpoles as Pole Finders, 615—Belgium, 615—Scientific, 615.	

* Illustrated.

MINING NEWS:
Alaska 617
California..... 617
Colorado..... 617
Georgia..... 618
Idaho..... 618
Indiana..... 618
Kentucky..... 618
Massachusetts.. 618
Michigan 618
Missouri..... 618
Montana..... 618
Nevada 619
New Mexico.... 619
Pennsylvania... 619
Utah..... 619
Wyoming 619

FOREIGN MINING NEWS:
Nova Scotia.... 620
Ontario..... 620

LATEST MINING NEWS..... 620

MARKETS:

COAL:
New York.... 620
Buffalo 620
Chicago..... 620
Pittsburg..... 620
Shanghai..... 621

IRON:
New York.... 621
Chicago..... 621
Cleveland..... 621
Pittsburg..... 622
Philadelphia.. 622

METALS:
Gold & Silver 622
Other Metals. 623

CHEMICALS AND MINERALS.
New York.... 623
Liverpool..... 624

MINING STOCKS:
New York.... 624
Boston..... 624
Cleveland..... 624
Colo. Springs. 624
Salt Lake City 624
San Francisco. 625
London..... 625
Paris..... 625
Meetings 625
Dividends. ... 625
Assessments.. 625
Nov. Divid... 625

STOCK QUOTATIONS.
New York..... 626
Boston..... 626
Ind. and Trust.. 626
Coal Stocks..... 626
Pittsburg..... 626
St. Louis..... 626
Colo. Springs . 6 6
San Francisco.. 626
Baltimore..... 626
Denver..... 626
Philadelphia ... 627
Salt Lake City 627
Aspen.. 627
Helena..... 627
Duluth..... 627
London..... 627
Paris..... 627
Mexico..... 627
Valparaiso 627
Shanghai..... 627
MINING Co's.... 628

ADVT. RATES. 18

ADVT. INDEX. 17

THE HEADQUARTERS OF THE MINING INDUSTRY.

Visitors find here files of a great number of papers from the mining districts of this and other countries, and books of reference which can be consulted for information on any question in which they may be interested. They can have their letters addressed in care of "The Engineering and Mining Journal," P. O. Box 1833, New York, and will find in the headquarters every convenience for correspondence.

"It's an ill wind," etc., and this war scare within a few days will bring joy to the hearts of manufacturers of projectiles, heavy ordnance, armor plates and ship builders who are in a position to construct battle ships and cruisers. Not only will every cent of present appropriations be expended in a hurry, but even these appropriations are likely to be exceeded in anticipation of more liberal ones certain to be passed within a few weeks. Good for Carnegie & Company, Bethlehem Iron Works, Cramp & Company, Newport News Works and many others.

Our special correspondent telegraphs us that the value of the product of the Leadville mines for 1895 will be $8,522,082, which is a slight increase over last year and brings the production of the camp from 1879 to date to $204,000,000. The gold, silver and lead produced during the past year gives the following value: Gold, $1,337,500; silver, $5,079,840; lead, $1,705,027. The balance of the valuation is zinc and copper. The tonnage of the camp for the year is 330,933 tons, divided as follows: Lead carbonate ore, 70,429; iron ore for fluxing, 86,243; sulphide ore, 116,975; silicious ore, 57,286. The output of Leadville's great gold property, the Little Johnnie, is given by the management as 47,360 tons of silicious ore.

The depressed price of copper in London has been attributed quite unnecessarily to a supposed threatened increase of the American production and the fear that the market would be swamped by an American flood of copper from Anaconda, Calumet & Hecla and other producers. It is perfectly true that the production from these properties and others could be very easily increased materially, yet from a business point of view it is very unlikely that any such increase of output will be made if it should result in the farther depreciation of the moderate price of copper now ruling.

There is really less reason for such apprehension at this time than at any other in recent years, as the visible supply of copper in the world is lower now than it has been since the commencement of the copper corner by the French syndicate in 1888.

Many of our readers are well acquainted with the charm of Canada as a holiday resort in the summer for fishing, later in the year for large game shooting, and in passing through the Dominion its farming capabilities, well developed over a vast expanse of acreage, cannot have failed to attract attention. Its mineral and lumber resources have also frequently caught the eye of men of business, and not always without benefit to themselves when the opportunity offered.

The most valuable portion, perhaps, of the Dominion, however, is possibly least known to Americans, and that is British Columbia.

The question as to whether some of the richest gold-fields of the far Northwest are on English or United States territory is likely to come up at an early date, and will form the subject of a boundary commission, or perhaps a dispute of far greater importance and more tangible than the extremely shadowy one in Venezuela that has created such a rumpus and inflicted such unnecessary loss on the country.

If such a matter were to become a "casus belli," which every sane man would deplore, and we were to acquire Canada, as we did Texas, Arizona and the greater part of California, by force of arms—in other words, land grabbing, "à la John Bull"—we would gain a prize indeed. Just consider the importance of Vancouver Island to this country! This island, about 300 miles long, with a breadth of 20 to 60 miles, has, in the first place, deep water inlets of sufficient capacity to shelter the fleets of the world. The arsenal and dry dock at Esquimault are better equipped than anything we possess, the latter being 457 feet long, 57 feet wide and 27 feet deep. The possession of Vancouver Island with its fortifications and the aid of a hostile fleet, places Seattle, Tacoma, Portland, and most of the Pacific coast at the mercy of the holders. Last, but not least, so far as fighting power is concerned and intrinsic value goes, the island contains the only first-class coal-fields so far discovered on the Pacific Coast. The output for last year amounted to about 1,350,000 tons, all of which is at present required and paid for by the United States with the exception of about 200,000 tons.

THE HARVEY PATENT CASE.

Many months ago, the Harvey Steel Company brought suit against the Bethlehem Iron Company for infringement of the Harvey patent, and moved for a preliminary injunction, forbidding the defendant to treat

steel armor-plates by the Harvey process pending the suit. This motion was made in April last; but it proved impossible to get a hearing on it until November, and the decision of Judge Dallas, in the United States Circuit Court for the Eastern District of Pennsylvania, has but just appeared, refusing the preliminary injunction.

This result was not unexpected, in view of the prolonged delay, during which the taking of testimony had made considerable progress. The injunction, if granted at this late day, would scarcely have been "preliminary"; and Judge Dallas says that as the Harvey patents have not yet been judicially tested and sustained by decree, the defendant is, in his opinion, "entitled to a suspension of judgment until final hearing." He adds: "So, also, is the plaintiff; and nothing affecting its rights is now decided, except that, being substantially attacked, it has not been so clearly and completely maintained as to warrant the award of a preliminary injunction."

As a final judgment on the merits of the case can probably be reached within a reasonable time, this decision does not, under the circumstances, affect the case seriously. The object of the motion for a preliminary injunction was generally understood to be to prevent the carrying out of a contract between the Bethlehem Iron Company and the Russian Government. Doubtless it is now too late to effect that object, as it is announced in to-day's papers that the Russian contract has been allotted to the Bethlehem Company.

THE WAR—MESSAGE AND ITS RESULTS.

What is Congress for, and why was the war-making power carefully withheld from the Executive by the Constitution of the United States, if a war-message, coming without warning and based on a doubtful argument, to say the least, must be endorsed without delay or debate? And what is the function of a free press, if it is not to be free to denounce such proceedings? And what does individual liberty in this country amount to, if it is to be the imperative duty of patriotism to join blindly in every proposal of war, however ill-considered?

The folly of these things is not cured or atoned for by platitudes, to the effect that "there will be no war." Nor is it justified by a belief that, in this sudden dispute, the United States is in the right. The threat of war was a terrible blunder in any case; and its results, aggravated by the thoughtlessness of politicians, newspapers and individuals, have already wrought more mischief than patriotism and wisdom (were we amply endowed with both) can undo in a decade.

This is not the place for a consideration of the partisan political aspects of the case. The subject more particularly pertinent to these columns is the effect of "jingoism" upon the real strength, influence and prosperity of the country, and especially upon our mineral industry. The notion that war, or "bluff" about war, can be a benefit to us, is the notion of barbarians, not of civilized men. And upon the same plane stands the declaration, which we hear too often, that a flurry or a panic in Wall Street is only the agony of a few speculators; that disasters in New York, Boston and Philadelphia are not disasters to the West; and that whoever is ruined through having trusted in the prospects of peace has been served right. There will be a stern awakening from these delusions. The truth, that both the dignity and the influence of this nation are best subserved by commanding the confidence, not arousing the anger, of other nations; and that wanton injury to any of our commercial interests is inevitably an injury to all, should not have required to be taught again by such an object lesson as we have just received.

The effect upon the mining industry is likely to prove specially unfortunate. All intelligent observers were agreed, a few days ago, that we were on the threshold of a great revival of public interest in this industry. But that revival has been indefinitely postponed by the paralysis of business due to war talk. Perhaps, if we should drift to a suspension of gold payments, and to an inflated irredeemable currency, we may have again, as we have had before, a period of wild speculation, out of which some lucky ones will gain large fortunes; but every sensible man knows that real industry has to pay for such deliriums afterward, with weakness and headache. War fevers do not give strength. Financial catastrophes are not good because speculators profit by them, any more than big fires are good because thieves get plunder in the confusion, or even because rebuilding "makes work."

The cost of war would be horrible and ruinous, and while it would be paid unflinchingly in a quarrel deliberately pronounced to be both just and necessary, it ought not to be demanded of us for anything else. But what shall be said of those who, professing to believe that there will be no war, sound the war-whoop nevertheless, just out of "patriotism"? What they are really shouting is, "Let us not have war, but only a taste of preliminary ruin, without war. Let us dance around the fire and cut ourselves with our knives for a while. After that we will cool down and have peace!" It seems to me that these wild and woolly warriors have adopted of the regular Sioux ritual only the more ridiculous half.

R. W. R.

THE CALCIUM CARBIDE-ACETYLENE GAS BUBBLE.

In the "Engineering and Mining Journal" of December 14th, in referring to "the Calcium-carbide gas bubble" we said "The Willson Aluminum Company," instead of saying a licensee or successor of the Willson Aluminum Company, namely the Electro Gas Company, has been selling rights to make acetylene gas and is floating financial bubbles which are very liable to explode. Probably few, it any, of our readers were misled by this error and certainly no one was injured by it, nevertheless, it seems to have greatly moved our correspondent, Mr. G. F. Seward.

As one of the chief promoters of both the Willson Company and the Electro Gas Company, Mr. Seward, while correcting the name of the present "bubble," should have answered some of the points we raised, that are infinitely more important to investors than it is to know whether it is the original company, or a licensee or other offshoot of the original company, that is securing their money upon wildly erroneous representations. We thank Mr. Seward for correcting our comparatively unimportant slip of the pen, and both we and the investors in this bubble will be still more grateful to him if he will throw a little light upon the important points we raise.

We have not questioned the importance of acetylene or of calcium carbide; on the contrary, the "Engineering and Mining Journal" was the first technical paper to call attention to them and their vast possibilities, but the statements which have been made by interested parties, and which are the basis on which the public is invited to invest, and is investing, in the stock of the Electro Gas Company, are, we have reason to believe, absolutely untrue. The fact that many eminent persons are interested in these stocks and that their names are used to "boom" them, proves nothing except that they too have been deceived.

The original statements which so attracted investors were that the Willson patents are valid and cover a process by which calcium carbide can be produced at from $5 to $7 per ton. These figures are now apparently abandoned, or at least are not so much talked of, for Messrs. Lawson, Weidenfeld & Company, who claim to have special sources of information, and who advise their clients to purchase the "acetylene securities," say in their circular of December 18th, that calcic carbide can be produced (presumably by the Willson process), by the Electro Gas Company, "commercially at $20 per ton," and in the near future "without the aid of electricity," at $7 to $10 per ton. There is no reason in fact to believe the first of these unsupported statements, and we should certainly accept with very great reserve, assurances as to what the future will bring forth when made by those whose statements of what is now actually done are so very far from the truth.

If the low costs of the future are to be attained, "without the aid of electricity," it would apparently mean that the processes claimed by the company, and for which the stockholders have been paying such enormous prices, are already known to be worthless, and the company is trying to get some non-electrical and cheaper process of manufacture. Or is it, perhaps, intended by this intimation to inject some additional gas into the bubble which they fear may collapse, or is it to neutralize the fact that the stock of the local Philadelphia Acetylene Company, $50 par, full paid in cash, is now quoted at "$20 bid, $30 asked?"

Mr. Seward has no doubt found acetylene "securities" profitable to him; perhaps he has been able through them to recoup his losses in backing Willson in his efforts to make aluminum; but his acetylene dividends have come, not from making calcium carbide at $5 a ton, nor at $50, nor from making acetylene on any commercial basis to compete with ordinary illuminating gas, but only from selling "rights" to make acetylene by the Willson process, to people who believe the unfounded statements that are made concerning the cost of the gas and the value of the patents for producing it.

Let us, in the interest of the public, ask Mr. Seward a few questions, which we have no doubt he will be glad of an opportunity to answer through the columns of the "Engineering and Mining Journal":

1. Is it true that there are and can be no patents covering the substances calcium carbide and acetylene?

2. Is it true that the patent for the Willson process for producing calcium carbide is worthless; that in fact the production of calcium carbide in the arc electric furnace is free and not now subject to monopoly, and that it is being produced by others in Europe without any regard to the Willson patents?

3. Is it true that the Willson Company, the Electro Gas Company, or those interested in promoting them and selling their securities, have made public statements for the guidance of investors, that they can make calcium carbide at from $5 to $7 per ton, or in more recent statements at $20 per ton?

4. Is it true that neither of these companies has ever produced or can to-day produce calcium carbide commercially at these figures or at a cost even seven times as great?

5. Is it true that neither Mr. Seward nor other gentlemen prominent in these concerns who have known that these public statements were and are absolutely unfounded have ever publicly protested against

the use of these statements, or have made any truthful public statement of what it actually has cost, and now costs, to produce calcium carbide or acetylene by their processes?

In short, are these enterprises selling "rights" which have little or no intrinsic value, or are they able to prove the public statements made for them that they are producing acetylene at figures that give it commercial importance?

We commend the letter of our correspondent "Acetylene" on another page to the thoughtful perusal of Mr. Seward, as well as of the investing public, and beg to offer the use of the columns of the "Engineering and Mining Journal" for the full discussion of this subject.

NEW PUBLICATIONS

CALIFORNIA GOLD MILL PRACTICES. Bulletin No. 6, of the California State Mining Bureau.

This little work of 85 pages supplies convenient and useful data on the subject of location, arrangement, construction, mechanical appliances of works and manipulation, in the present practice of gold milling in California, and will be useful to the practical millman, miner and investor.

The articles on sampling, assaying and concentration are particularly commendable for the simple, practical and accurate means suggested to supply valuable information to the ambitious millman, and show him how he can improve his results and at the same time do his work more economically. They call attention to subjects that are becoming more and more important.

The work closes with a description of typical plants in the different counties of California, and a complete specification for a 40-stamp gold mill driven by water power.

It is available to citizens of the State of California for the postage (3c.), and to outsiders on a remittance of 50c. with their application, to the California State Mining Bureau, No. 24 Fourth street, San Francisco.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Official Statistical Directory of the Republic of Mexico for 1893. Edited by Antonio Penafiel. City of Mexico; National Printing Office. Pages 496.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
Letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Trail Creek Smelter.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I beg to call your attention to an item which appeared in your issue of December 21st, on page 594, under British Columbia Mining News, as follows:

"Trail Creek Smelter.—There have lately been many conflicting rumors in the camp regarding the Trail Creek smelter and the projected narrow gauge railway between Rossland and Trail Creek Landing. Work on the smelter continues, though for some time past under the management of a receiver, and to-day grading is to commence on the narrow gauge at the Trail Creek end."

We wish to say regarding this item that the statement that work is progressing on a smelter under management of a receiver is not correct as far as the British Columbia Smelting and Refining Company is concerned, which is erecting the work, but applies solely to the contractors to whom the contract for building the smelter was let. Said contractors disagreed about a month or so ago, and could not settle their difficulties without going into the hands of a receiver, and said receiver is continuing the work on the smelter so as to give the contractors the benefit of the contract. All the work is progressing and the smelter expects to blow in about the middle of January.

BRITISH COLUMBIA SMELTING AND REFINING CO.,
NEW YORK, Dec. 26, 1895. Arthur P. Heinze, Secretary.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In the issue of the "Journal" of November 30th, in a synopsis of the report of the Reading Railroad Company is stated a deficit to November 1st for the year of the Coal and Iron Company to be $1,753,912. Is the value of 8,000,000 to 9,000,000 tons of anthracite mined this year from the lands of the company? Coals are leased and sold for 50c. per ton in the mine, and if their value were taken into account in monthly and yearly reports, would not the stockholders and owners get a more definite idea of the depreciation of the property? That company, as well as others, may continue to mine and send away their coals without profit, but the time will come when stockholders and bondholders will want something more than abandoned coal breakers, and mountain lands with no coal, as a base for bonds, and that time is coming too soon, for many who hold securities based on anthracite coal lands. R.

SCRANTON, Pa., Dec. 19th, 1895.

Gold in Nevada.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: An astonishing amount of gold is now being found in this State, heretofore looked upon as being almost wholly silver producing. Our production of gold is now several hundred thousand dollars greater than our production of silver. Next season Nevada will be heard from in gold production. Even at this time some good discoveries are being made. Some of these discoveries—in the unexplored southern parts of the State—are being kept secret, but must soon become known through their yield of gold. From one of the secret "finds," gold to the value of nearly $10,000 was sold in Salt Lake three or four days ago. The men who brought in the gold said they had extracted it by a crude method and claimed to have discovered a region rivaling Cripple Creek, but refused to give particulars until after January 1st. Through men working about Disaster Peak, we have had rumors for two or three months of men being at work in secret mines in Southern Nevada in the direction of Death Valley. One of these mines is reported to be in the mountains 100 miles west of Hiko. Doubtless all these new discoveries will be shown up next Spring or before. There are still thousands of square miles in Nevada about which little is known. I think the tide of mining development and speculation will turn Nevadaward next summer. DAN DE QUILLE.

VIRGINIA CITY, Nev., Dec. 10.

The Calcium Carbide Gas Bubble.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I have seldom seen a more inaccurate statemement than that contained in the article entitled "The Calcium Carbide Gas Bubble" published in your issue of the 14th inst.

You state that the Willson Aluminum Company is "selling rights to manufacture" and collecting cash for such "rights," referring to "rights" to manufacture calcium carbide. The Willson Aluminum Company is doing nothing of the kind, has never done so, and never will, for the simple reason that the ownership of the Willson patents to make carbide of calcium for light and heat and power does not belong to it, but to the Electro Gas Company. You state that the Willson Aluminum Company recently received $300,000 in cash as part payment for such a sale. This is simply and wholly untrue.

I now ask that you state fully and unequivocally in your next issue that you were entirely wrong in your use of the name of the Willson Company in the article in question. You may do this by publishing in your next issue this letter or in any other way that will make a fair and honorable correction.

I may say to you that my information is that calcium carbide is now being produced in limited quantities and that it can be produced cheaply enough to be very valuable for lighting purposes. If the Electro Gas Company is selling "rights" and getting good money for these it is pretty certain that the purchasers know that they are getting good value for their good money. And if your information on this part of the business is not worth more than your information about the Willson Company it is worth absolutely nothing. Yours truly, GEO. F. SEWARD.

NEW YORK, Dec. 19, 1895.

The Acetylene Mystery.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Referring to your remarks on calcium carbide in the "Engineering and Mining Journal" of the 14th inst., allow me to add something to the general fund of information on this subject.

Acetylene gas is a combination of hydrogen and carbon and is the product of the decomposition of calcic carbide and water. Calcic carbide is the combination of calcium and carbon and is a product resulting from the action of the heat of the electric arc on lime and coke. A short ton of calcic carbide, 95% pure, may be counted upon to produce 10,000 cu. ft. of illuminating gas, which gas is over ten times brighter than the present average illuminating gas. If calcic carbide could be produced for $30 per ton, including conversion of the same into gas, the resulting gas would cost $3 per thousand: hence, as this gas is ten times brighter than ordinary illuminating gas, the proportionate amount of illumination could be had for 30c. per thousand. The production of water gas in the United States is now costing from 30c. to 40c., or more, per thousand, varying according to the care in the management of the work. This figure does not take into consideration the handling of the gas further than putting it in the holder. Calcic carbide is now being produced and has been for about two years past, at Neuhausen-on-the-Rhine, with water power, and in one of the most complete electrical and industrial plants in the world, at a cost of 3½c. per lb., or $70 a short ton.

The Willson Aluminum Company, in experimenting with an electrical furnace destined for the purpose indicated by its name, at Spray, N. C., accidentally produced a substance which upon investigation by New York scientists and not of the knowledge of the Spray people, was found to be calcic carbide. Now Moisson, of France, had been making calcic carbide for some years experimentally; and the distinguished German scientist Dr. Borchers had preceded him in this work by about eight years, so that calcic carbide was not a new and startling thing to the student of this line of science when the Willson accident occurred, but it was so apparently to the Willson interest, and the general public, of course. In the meantime it had seemed to have been thoroughly demonstrated that the cost of calcic carbide would preclude its general use in competition with the ordinary methods of the production of illuminating gas. At the same time it is generally considered that could it be made for something like from one to two cents a pound, there would be a wide use for it for isolated lighting. That acetylene may be liquified under great deal safer pressures than are used for the handling of carbonic acid gas, and that the same may be served in cylinders as carbonic acid gas is handled, all admit. As an enricher for the present form of illuminating gas, the cost of production would have to be brought below one cent a pound before it could compete with benzole at the present market prices.

The crux of the question, then, is the cheap production of calcic carbide. It was upon this point that the Electro Gas Company, of 45 Broadway, New York, which had secured the rights from the Willson Company for handling the product before mentioned for heat, light and power, attracted so much attention, by at first claiming their ability to produce calcic carbide for "from $5 to $7 per ton," which would, of course, in turn, mean proportionate illumination with present means, at from 5 to 7 cents per thousand cubic feet. Offices were opened here, there and elsewhere, in which brilliant experiments were made under the noses of curious people, by simply dropping a lump of calcic carbide into a tank of water and generating gas which gave an illumination almost like sunlight, all at a single, simple operation. The estimated cost of their calcic carbide was gradually increased by the promoters for, from "$5 to $7 per ton," to $12, then to $15, then to $17 and then to $20, where it now seems to hang so far as the general public is concerned: although we are informed that Col. Morehead, the President of the Willson Aluminum Company, who is in charge of the operation of the production of the calcic carbide, which is being used by the Electro Gas Company for their

exhibitions, says "that our calcic carbide is now costing $40 a ton, and will eventually cost $30." It is explained by the promoters of the scheme to those who are able to get near the point of the business, that "Here we have an electric furnace, in the bottom of which is a cathode, in the top of which we have an anode (the first a carbon plate; the second one or more large sticks of carbon), here is our dynamo, here is our water-wheel, here is our old mill-race, and where is the cost of power? Here is a one-armed man feeding ground lime and coke into the furnace, and here is a negro-boy working the anode up and down so as to maintain the arc. There is the pay roll, here is the bill for the lime and coke. Where is this great expense account we hear about?" From this standpoint, it seems to be rather remarkable that any one should even at present put the cost as high as $40 per ton.

This situation apparently presents very simple grounds for investigation. As a matter of fact it is a little too complex for the ordinary technical investigator, and is far beyond the public. It combines several important elements which require investigation by men who are fitted to investigate in three important fields: (1) Mechanical engineering, (2) Chemistry and (3) Electricity. It has not been passed upon, publicly, by men of the character mentioned. It is safe to assume that the promoters in question have not discovered any new principle in electricity. Unless they have done so, it is equally safe to assume that with their primitive methods they cannot produce calcic carbide as cheaply as it is being made at Neuhausen with the most perfect facilities which capital can employ. It is held by a few students of this subject that the same ignorance which prevented the promoters of this operation knowing that they had made calcic carbide originally, is responsible, together with the enthusiasm of the moment, for their further failure to discover the leak in their estimates. It is possible that that leak may be found in the fact that they fail to charge themselves with sufficient expense for power. It is said that the Electro Gas Company has arranged to put up calcic carbide works on the line of the Niagara Falls Power Company and has contracted with that company for power at the rate of $25 per horse power per annum. It will be found that paying for their power at this rate, if they run every hour and every week day of the year, and use every atom of their electric current in the production of calcic carbide, that their power will cost them about $11 per ton of carbide produced. At Neuhausen, only about 20% of the total efficiency of the heat of the arc is utilized in forming the calcic carbide. $11 × 5 = $55. The Pittsburg Reduction Company has had a wide experience with electric power and heat. No one to date, it seems, has succeeded in patenting calcic carbide. Patents have been secured on several ways of utilizing the same. The Pittsburg Reduction Company, apparently being aware of these facts, made a line of experiments which are said to have been much more exhaustive than any work yet done, or possible, by the Willson Aluminum Company, and stopped the work because of the fact that the production of the calcic carbide cost them, instead of $70 per short ton, as at Neuhausen, at the rate of about $150 per ton. At this price they saw little use chemically for the product; and, as their acetylene gas product would cost them $15 per thousand, or $1.50 per thousand for illumination proportioned to ordinary gas, they left the field.

It is supposed that the reason for the failure to secure the total effectiveness of the heat of the arc in the production of carbide is found in the impossibility to feed the ground lime and coke into the furnace so that the arc may be continuously maintained. When the crushed lime and coke are placed on the cathode, and when the top of the pile reaches a proper distance from the anode or the carbon sticks, quite the full effect of the arc is had, and calcic carbide is formed. Should the top of the pile be too far beneath the anode, as long as this continues the power is being wasted, the anode being burned away. Should the top of the pile of coke and lime be too high and touch the anode, the current is short-circuited, and the waste goes on as long as this state remains unchanged. Various methods are being tried for correcting this state of affairs, which will be best understood by pointing to the clockwork now used for a similar reason in the arc lights in daily use, which are all imperfect in the respect in question to date. Industries depending upon electric arc are proceeding without much hope of correcting this serious drawback. Their hope for economy lies in cheap generating power. With very cheap power, say $2 per horse power per year, or the discovery of means for the utilization of the full theoretical power of the heat of the electric arc, the problem of the production of calcic carbide at $30 per ton and acetylene gas at $3 per thousand will be solved. So far as the Willson Company, or any other carbide producer, is concerned, these accomplishments are as far away as the discovery of a method to get in general use more than 20% of the full energy of coal.

ACETYLENE.

REDUCTION WORKS OF THE COMPANIA HUANCHACA DE BOLIVIA.

Written for the Engineering and Mining Journal by K. F. L.

This enormous silver reduction plant is situated some 6 km. to the south of Antofagasta and on the same side of the bay, on the line of the railroad to the interior of Bolivia, which is also run at present by the same concern, the famous Compania Huanchaca de Bolivia.

The works, constructed by Mr. A. F. Wendt, a Columbia College man, and a member of the A. I. M. E., were started in October, 1891, and have run ever since without interruption, although up to date never to their full capacity. Alone the amalgamating plant can consume from 250 to 300 tons a day (all weights given are metric), while the smelting works another 80 or more tons. The same company has had its other reduction works Huanchaca, which are near the mine, continuing at work. I do not suppose it can have been the original intention of the management to keep both plants at work, or else the works are two years ahead of the mine. It must be hard for a mine in the interior of Bolivia 4,000 m. high, worked by a third shaft into a tunnel 300 m. long, to produce the necessary ore, and at the same time extract enormous quantities of water without the adequate means. At present a new shaft is being sunk, and powerful pumping machinery is on the road. Once these two work in combination we may see the enormous works in Playa Blanca run to their fullcity, capa The Playa Blanca works occupy a sloping ground of the sea, the highest level being some 400 ft. above the same. The ground enclosed by a high corrugated iron fence is about 1 km. square. Some idea of the size of the works may be gathered from the fact that there are some 16 km. of railroad track within the enclosure. The highest level is occupied by the habitations of all the principal employees; most of the houses were imported from the United States. This section contains the general store, run on the "buy who will" plan, drug store and hospital and general stables. Separated from this section by another high fence are the works proper. There is but one entrance from above, at which a porter stands day and night, challenging everybody going in and out, and without a special permit it is impossible to get in. As such a process is new on this coast it has caused a good deal of adverse criticism. Immediately beyond the gate are the workshops, composed of a well-regulated blacksmith shop, a very complete workshop, carpenter shop, and a copper and iron foundry, perhaps the largest on this coast, at least it does more work than any other here. The Antofagasta and Oruro Railroad passes by the works. From the town of Uyuni a branch line leads to the Huanchaca mine (so-called at least generally, although the mine is in Pillacayo, Huanchaca being the seat formerly of the management and where the reduction works now actually stand), the total distance being near 700 km. The ore cars, not a special type, but the common freight cars, are charged on the dressing floor of the mine; from there they come in three days to be discharged into a row of bins above the battery. These bins have a capacity of 4,000 tons. Besides these there are two salt bins, and six more for coal, both the boilers and gas producers being on the next level below. From the bins the ore passes directly into four Blake crushers, 20 in. × 10 in. From each of these the ore goes through a horizontal revolving dryer heated with gas; the next step is surmounted by a long pipe conveyor which drops the hot dry ore into bins immediately above the feed floor of the battery. The 100-stamp battery (10 sets of 10 each) was built by the Union Iron Works, of San Francisco, Cal. The stamps are 1,000 lbs. in weight, mortars double discharge, 40-mesh screen, 7 in. drop, 95 to the minute, challenge feeders; the average crushing is 90 km. ore per stamp per hour. From each set the pulp is carried by a pipe conveyor to a separate bin. The arrangement is such that we can work four different kinds of ore and keep them separate all the time. Besides the above, this section also contains a salt crusher, dryer, rolls and crushed salt bins. The arrangement for collecting the dust is very effective and simple. On front of the batteries and immediately above the mortars run a 2½ ft. pipe, which is in connection with the former. From the center of the large pipe a 6-ft. Sturtevant blower exhausts and drives the air charged with dust into long canvas sacks. From these the fine dust is periodically collected. From the pulp bins below the battery floor hand cars take the ore as required by the furnaces. Each car taken is weighed and assayed as these items form the bases for all our calculations. The calcining furnaces, of which there are 11, are of the Tertschaufelungs type of three hearths, total length being 49 ft. by 15 ft. wide, fired with gas; they are situated next to the gas producers and much above the level of the pulp, hence the ore in cars has to be raised to the level of the furnaces by an inclined plane. Each furnace calcines between 7 to 12 tons per day of 24 hours, with an average consumption of 140 km. coal per ton in the form of gas; the coal used is Chilean, and of a very poor quality. Each furnace is worked by four men in 12-hour shifts, who are paid so much per charge, the weight of which averages 1,400 km. The roasted ore is discharged into cars in a tunnel below the furnaces. A small locomotive hauls these to the cooling floor, where the ore is allowed to cool from 24 to 72 hours. The ore of each shift is kept and worked separately in the tinas or amalgamating pans.

Gas Producers.—The Playa Blanca plant for drying ore, salt, and for calcining the former consists of 8 Taylor gas producers 6 ft. in diameter by 15 ft. high. Six of these are sufficient for the 11 reverberatory furnaces and the drying of ore and salt. The producers are now run at a pressure of about 2½ in. water; the gas pipe near the producers has a pressure of about ⅝ in., and at the end of the line ¼ in. There is one man to each producer in 12 hour shifts. The gas pipes are cleaned but once a month; the producers every 24 hours. The consumption of coal at present per ton is more here by 40 to 80 lbs. than in similar works in the States; but taking all considerations into account, we compare very favorably. While in the States the gas produced is used in one or two furnaces near its source, we here divide it into 11 and more, and at a great distance from the producers; besides American works have good coal in command, while here we use mostly Chilean of very poor quality and sometimes Australian very little better. When using English coal with more or less 90% fixed carbon and volatile matter the consumption per ton diminishes greatly. The management insist that the producers are meant to use poor coal, and hence we get it.

The boiler plant consists of 6 horizontal internally fixed tubular boilers, 15 ft. long by 8 ft. diameter, each with a 60 ft. chimney, arranged for forced draught, run at 140 lbs. pressure. The consumption of the boilers averages some 14 tons coal a day. We are greatly troubled by bad water.

Motive Power.—One large Corliss, 4-cylinder triple expansion, built by the Corliss Steam Engine Company, of Providence, R. I., supplies the whole works with the necessary power. The cylinders are: high pressure 20 in.; intermediate, 34 in. and 2 low pressure, 36 in. The engine develops 1,000 H. P., with 150 lbs. steam and 60 revolutions. The flywheel is 27 ft. diameter and 88 in. face, from which the two main shafts (battery and pan) are worked with one belt of 48 in. and the other 36 in.

Water Supply.—Wherever possible sea water is used. For this purpose we have on the shore a large double expansion Worthington pump, high pressure, 15 in. and low, 30 in., the pump cylinder being 13 in.; has to pump the water 180 ft. high and to a distance of 2,100 ft. We used daily some 3,000 tons of this water. The fresh water is supplied to the company by a line brought from 300 km. on the line of the Antofagasta & Oruro R. R. This line also supplies the town of Antofagasta with water.

The amalgamating plant consists of a battery of 32 tinas, 30 of which are for amalgamation and the two for the refining of the amalgam, besides 15 settlers and 3 agitators. This, as all the rest of the works, was constructed in the States. The tina, although usually believed to be different from the pan, is in reality in every respect the same, the only difference being in that the former has the muller and sole plate of

bronze. The framework and base is of iron, the bottom 3-in. staves of common yellow pine, held together by round hoops. The whole of the interior is of wood and copper. The sole plate is cast in one piece and when in position is firmly wedged to the staves and center cone of the shaft, so that the solution in amalgamating cannot come in contact with the iron base of the tina. The muller makes about 45 revolutions a minute and the settlers 15, although some are running at 30 with satisfaction. The tina process is carried out as follows: We add, more or less, 1,200 l. of sea water, or about 50% of the ore, and apply steam directly from the top by means of a small rubber hose, which reaches within 6 in. from the bottom, immediately after the tina is set in motion and charged. The ore comes from the cooling floor in hopper cars of, more or less, 2,500 kg. capacity. These are placed over the tinas, so that the charge falls directly into the same. The charging of the whole battery takes, more or less, 15 minutes. When finished 10% of a poor class of salt is added, and immediately after the first lot of mercury is added in one lump, as a rule from 10 to 16 kg. After this "incorporo" the mercury is added as required and no more. Every 30 to 45 minutes a sample of the charge is taken by means of a spoon. This washed in the "chua" is a magnificent indicator of the condition of the charge, and, if everything is running normally, whether more mercury is required, as a rule the mercury is added gradually in 4 to 6 lots varying from 16 to 4 kg. per lot, we apply 8 kg. mercury to the kilo silver contained in the charge. During the first two hours of the operation, steam is applied. The time required to complete amalgamation varies from 4 to 8 hours, by means of the chua it is determined when finished. The loss in mercury varies from 1 to 4 Spanish (28.7) ounces to the marco of silver (230 gr.), according to the condition and character of the roasted ore. The life of the bronze muller and solerplate varies greatly, the average being about three months, the weight of the former when new is 1,200 km. and the latter 1,100 km. When worn out they weigh respectively 340 and 260 kg., the amalgamation being charged with the difference. The muller is usually kept ¼ in. above the sole plate. The steam used for heating the charge corresponds to about 2 kg. coal per ton of ore. Shortly before discharging we raise the muller an inch or two, dilute the charge as much as possible and then discharge directly into the settler. In the canal between the tina and settler we have pits in which we collect mostly all the mercury and amalgam that escapes from the tina in discharging. The tina is allowed to cool, the mercury and amalgam is collected by hand for obvious reasons. The impure amalgam mixed with tailings, etc., is placed into a smaller tina of exactly the same construction as the others; it is here washed of its mechanical impurities in 2 to 3 hours. The fineness of the average amalgam we produce is about 980, the principal impurity being copper. As the management demands bars not below 996 fine, we refine the above amalgam as much as possible in the same tina as the washing is done in. For this purpose we add to the clean amalgam 0.75 to 1.50% of sulphate of copper, and 3 to 6% common salt; we thin the whole with more mercury and allow to run with steam on the addition of a little water from 6 to 12 hours. Our average amalgam is refined nearly to 997 or more. The practical test for determining whether the refining is accomplished is by burning a small sample. If the remaining silver is of a certain whiteness the work is done; if not we again add a small quantity $CuSo_4$ and NaCl. The refined amalgam is again washed, allowed to flow in a big copper dish, and here still further purified of light amalgams, dried of its water and filtered in canvas bags. This amalgam contains more or or less 5 mercury to 1 of silver. The filtered amalgam is then charged into the retorts of 1 ton capacity, but we never add more than 500 kg. amalgam to a charge, the consumption of coal being about 1.5 kg. to the kilo of silver produced. The average life of a retort is from 20 to 30 operations. The time of retorting is about nine hours. The retorted amalgam (pina) is cut into pieces 1 ft. long, assayed for its contents in silver, mercury and impurities. The retorted amalgam is still further refined in a small reverberatory smelting furnace in charges of 2,500 kg. This operation takes from 6 to 12 hours, according to the impurities contained. The consumption of coal is about 1 kg. to the kilo of silver, and the total cost of the operation is about $0.05 Chilean dollars per kilo of silver. The loss of silver during the operation does not reach 1%. Bars averaging 30 kg. in weight are shipped.

Smelting Works.—This was built at the same time as all the rest of the establishment, but was started much later, in fact it has been at work and stopped already three times. At present the company seriously thinks of keeping this plant running. As the Pulacayo mine produces very little lead ores, we depend totally on bought ores. The situation of the works is on the lowest and third general level of the establishment. The highest is occupied by mechanical roasting furnaces, two Bruckners and a triple White. On the next level below these are four slag roasting furnaces; the next is occupied by a 250 H. P. Corliss double-expansion engine used as an auxiliary; it can be put in motion within 10 minutes notice, having direct steam communication with the main boilers. The motive power used in the smelting works is transmitted by wire rope from the battery main shaft of the big 1,000 H. P. Corliss engine to a line shaft at the smelting works moving the blowers and samplers. The ore extracted from the mine is roasted in 1-ton kilns, of which there is a row of 30 on the highest level of the establishment next to the high chimney belonging to the smelting works. Pile roasting is also made use of. Playa Blanca buys all silver, silver lead, lead and silver copper ore presented. The prices paid are a little better than those usually paid on the coast, yet to compete with the States or Europe they are far too low. The question is at present under consideration and very soon but little ore will pay to be exported from this coast. We have two Rachette and a small round blast furnace; the former have a capacity of 80 tons of charge each and the latter half that amount. Matte, of which we produce but little, is concentrated and exported to Germany. The lead bars produced of about 1% in silver are cupelled; no lead at all is sold. We have at present in actual operation three English cupel furnaces and two German, the five with a daily capacity of, more or less, 500 bars of 37 kg. each. This, too, is about the daily production of the three blast furnaces. For agglomerating the "fines" we have a row of small, round patent agglomerating furnaces, built according to the plans supplied by one of our directors. These works, so insignificant at present, have a great future before them.

PLAYA BLANCA, Nov. 1, 1895.

COAL IN COLOMBIA.

Written for the Engineering and Mining Journal.

The coal deposits of Colombia, so far as known, are of considerable extent. Coal is found all along the east coast of the Gulf of Uraba and around the Atlantic littoral adjoining. In Antioquia the coal series comprises as many as 34 veins, some of them being from 10 to 12 ft. thick, and it is remarkable that bituminous coal, anthracite and lignite are found in close proximity, a statement which might reasonably provoke doubt; but it is a fact confirmed by actual experience.

At the Zancudo mine in Antioquia no less than 15 veins are worked and about 50,000 tons of coal taken out yearly, the product being used chiefly for smelting. It is at this place that anthracite, bituminous and lignite all occur in the same series. Some of the veins worked give a coal which will not coke, but other coal is obtainable at the same place which gives 45% of good coke burned in the open air in heaps.

The Guaca coal, about 15 miles to the northward of the Zancudo, and occurring in the same series, is only a good lignite. Near Cali, in Cauca, the same thing is observed, as also near Sutia and Rio Sucio, in the Maracuato.

My theory is that these coals, which are all cretaceo-tertiary, have had their carbonization hastened by metamorphic action. Near the Zancuod mine the action of the porphyry formation is plainly seen, and in some cases the coal is burned up. Where no igneous rocks exist the coals are poor and lignitic in their character. I feel sure also that these coal beds in the main were not formed from vegetation growing on the spot, but that they were gigantic raft-like accumulations of stems, boughs of trees and similar vegetable debris. No traces of roots are seen. This theory may in part count for the differences in the coal.

Near Cali coal can be obtained quite good enough in quality for steamship use, as it gives abundant heat, and contains only about 5% of ash. In the Patia Valley very good coal is also met with. Some analyses made by the late Senor Jorge Isaacs gave results in substance as follows: Arboletes coal, black conchoidal fracture, contains little or no pyrites, burns easily with a long bright flame; ash, white, 8·35%; yields 48% of coke; heating power, 50% of that of pure carbon.

Punta de Piedra coal, black and vitreous: fracture imperfectly conchoidal: burns with difficulty, almost without flame; ash, yellow, ferruginous, 8·34%; volatile matter, 13·66%; non-volatile, 86·34%; makes no coke, only a pulverulent carbon; heating power, 85% of pure carbon; a good anthracite.

Petroleum exists in Colombia near Ibague in the Magdalena Valley and in other places. The late Senor Jorge Isaacs says that the petroleum springs near Arboletes are found from 150 to 200 meters from the sea coast and 25 or 30 meters above sea level. One of them when observed had a basin of about 20 meters in diameter, from which nearly pure oil flowed abundantly.

Mr. C. F. Z. Caracristi, Consulting Engineer, who has devoted many years in the explorations of the unexplored regions of the Republic of Colombia, South America, and who represents and owns with his associates, together with the Colombian government, the vast coal-fields and petroleum deposits which he discovered on the Atlantic Coast of Colombia and its tributaries.

Mr. Caracristi has made the following statement:

Next in importance to the opening of the Nicaragua or Panama Canal, or both, comes the importance of cheap coal in South and Central America. For many years I recognized the importance of an American company controlling the fuel supply of South and Central America. My researches for coal in Venezuela and Nicaragua without discovering coal of commercial value led me to almost surrender the hope of its existence in South and Central American territory.

However, the high consideration and urgent request extended to me by the late President Rafael Nunez led me to make the explorations in Colombia which have resulted in the discovery of vast coal-fields covering over 10,000 square miles on the sea border and on navigable rivers at the very center of the American continent. These explorations extended from the Gulf of Chiriqui across the Isthmus to Gulf Dulce; thence to Panama and Colon, and from there along the coast of San Blas and around the Gulf of Uraba; then overland to the Sierra Nevada, de Santa Marta mountains, then down into the Goajiran Peninsular.

These explorations required much energy, courage and privations, as nearly all of the territory was uninhabited except by a few Indian tribes, some of which were more or less hostile.

The anthracite coal mines of the Gulf of Uraba, the bituminous coal deposits of Arboletes and the cannel coal at the base of the Sierra Nevada mountains are among the most wonderful, so far discovered on the American continent. The same may be said about the hundreds of oil springs which I discovered surrounding the Gulf of Uraba. One of these during the wet season would easily fill a 6-in. pipe, and as the spring is only about 300 ft. from the seashore tank steamers could be filled from these wells direct. The coal lies from 3 to 60 miles from the seashore and navigable rivers.

After these discoveries were made and verified by authority from the Colombian government, President Nunez, who has done so much for Colombia placed in my hands the important mission of their development. This wise action on his part resulted in the organization of the Pan-American Investment Company, which together with the Colombian government as associates and partners are now opening the mines on the Magdalena River and the Gulf of Uraba.

The development of the coal mines at this point will materially reduce the fuel expense to steamship companies, as it is proposed by the company to reduce the present standard of $15.00 per ton to $7.50 per ton.

It is surprising that 3,000,000 tons of coal are yearly imported into South and Central America and the West Indies from England. The coal deposits of Colombia will at once shut out the foreign coal, and as the company which control the 10,000 square miles of coal and oil lands is mostly composed of Americans we shall then take away from England its supremacy in the coal markets of South America. These developments, too, are of moment to the Nicaragua and Panama canals, as the mines now actually under operation are only 12 hours' run from the city of Colon.

THE TREATMENT OF AUSTRALIAN ORES.

Written for the Engineering and Mining Journal by John Plummer

To the energy and enterprise of a shrewd, buisness-like American, Mr. John Howell, Australasia is likely to become largely indebted for an enormously increased development of its leading mining industries. Although incredibly rich in mineral deposits of almost every class, there have hitherto been no local facilities for dealing in a satisfactory manner with the immense quantities of gold, silver and other refactory ores found in the several colonies. In the course of an interview with a representative of the Sidney "Morning Herald," Mr. Howell said: "From an intimate knowledge gained by over 30 years' practical experience in mining and metallurgy in the most important mineral-producing countries, I feel justified in saying that in no other part of the world can there be found such vast quantities of valuable gold, silver, lead and zinc sulphide ores as exist in the Australian mines at the present time, and where suitable metallurgical works for the treatment of such ores are so much needed. In fact, there is not in the whole of Australasia a metallurgical works that can treat in any considerable quantities successfully and economically such sulphide ores as abound in the mines of Australia, and it is surprising that the erection of a works so much needed, and which promises such large returns on the capital invested, has been so long delayed." Mr. Howell, who was formerly general manager of the Broken Hill Proprietary mine, had, in the course of his experience, become aware of the fact that the gradual diminution in the reserves of the oxidized ores would make the profitable utilization of the sulphides a vital necessity in the future. Hitherto these latter have been shipped from Port Pirie, South Australia, the place nearest the mines, to Europe, but the cost of transport has naturally diminished the per centage of profit.

Mr. Howell, on resigning his post as manager at Broken Hill, lost no time in endeavoring to give effect to the ideas that had been maturing in his mind. After passing a few months in the United Kingdom, he proceeded to the United States, where he had formerly been in charge of metallurgical works, with a view to making himself acquainted with any improvements that might have been made during his absence in Australia. He found that the business of dealing with refractory ores had made considerable progress. "All the small works on the American mines," he said, "are rapidly being abandoned, and are giving place to large central works such as it is proposed to erect at Lake Illawarra. These works are scattered all over the country, on railway line centers or at places where there are facilities for the carrying on of the operations. In some of the works they depend upon ore brought down to them by rail from distances ranging from 600 to 700 miles. It is found cheaper to carry on the work in this manner by using large and costly machinery instead of by each mine doing its own work in a small way." Feeling convinced that a similar system would succeed in Australia, Mr. Howell put himself in communication with a number of capitalists, the result being the formation of the Australian Smelting Company, with a capital of £500,000 privately subscribed. The company lost no time in commencing operations, and have already made a start in the construction of works at Lake Illawarra, an inlet of the sea, a few miles from Sydney, on the southern coast of New South Wales. Here, says Mr. Howell, "the treatment will consist of smelting, desulphurizing and roasting. We shall also follow the electrolytic process for the extraction of zinc from zinciferous ores, such, for instance, as the Broken Hill ores, by which treatment metallic zinc will be manufactured. A contract is already let for this portion of the plant to Messrs. Siemens Brothers, well-known electricians of London, and the machinery will be forwarded here as quickly as it can be made. Another process that will be adopted will be the manufacture of oxide of zinc. This is used largely for paints and for other purposes, and there is a great demand for it in England. This, by the way, will be an extensive plant of about 4,000 H. P. We intend, in fact, to erect works that will treat about 200,000 tons of ore a year, and then increase them afterward. The first cost altogether will probably be about £300,000." The works are expected to be in partial operation early next year. The site is admirably chosen, water being plentiful and the supply of coal practically inexhaustible.

It is anticipated that the bulk of the sulphide ores will be obtained from Broken Hill, the company purchasing them in either a crude or concentrated state. Mr. Howell states that they are practically inexhaustible, as they extend in a continuous body throughout the several locations on the main Broken Hill lode for a distance of over two miles, varying in width from 20 to nearly 300 ft., and to unknown depths. They are proved and developed, however, to a depth of over 800 ft., with no indication of giving out; so taking into consideration the great quantity of ore the developed ground will produce with the still greater quantity that it is reasonable to expect the unopened ground will yield, it is evident that the Broken Hill mines will produce many millions of tons. It is not, however, on the Broken Hill mines alone that a metallurgical work would have to depend for a supply of ores, for it is well known that throughout the vast mineralized region of Australia hundreds of mines have already been discovered, and to a very considerable extent developed, disclosing extensive bodies of refractory sulphide and other characters of ores rich in gold, silver, lead, copper, zinc, and other valuable metals, which at present cannot be worked, as there is not in any part of Australasia a metallurgical works where the sulphide ores can be cheaply and successfully treated, and all the valuable metals extracted." The system of dealing with mine owners will tend to place large quantities of ore at the disposal of the company. "We purpose," explained Mr. Howell, "to purchase the ore from the mine-owners, giving them so much per ton for it, according to the assay value, and running any risk that there may be regarding the extraction of the metals ourselves. This will give the miners a sure market for ores which at present are almost valueless. We shall pay the money for the ore straight away—there will be no waiting—although the ore may not be dealt with for some months." The minimum capacity of the works will be 300,000 tons per annum.

SYDNEY, N. S. W.

MINERAL RESOURCES ON THE SOUTHERN RAILWAY FROM ATLANTA TO BIRMINGHAM.

Written for the "Engineering and Mining Journal" by Wm. M. Brewer.

It is not generally appreciated that the entire country traversed by the Southern Railway from Atlanta, Ga., to Birmingham, Ala., a distance of 168 miles in nearly a due westerly course, is underlaid by mineral resources. Sixteen miles south of Atlanta itself there is the extensive granite quarries of Stone Mountain, which are tributary to the road, though not adjacent to it. The quantity of excellent building stone in this mountain is practically inexhaustible, and under the management of the Venable Brothers, the present proprietors, this mineral resource of the State of Georgia is being forced into the prominent position to which it belongs. Traveling westerly to the Chattahoochee River there is the plant of the Chattahoochee Brick Company, where several hundred convicts are employed in manufacturing brick from the clay found in large quantities in that vicinity.

On the west side of this river, entering Cobb County, there are some of the oldest placer gold mines in the State. These were worked before the war and abandoned until a few years back, when prospectors found gold-bearing quartz occurring in the vicinity of these old placer mines. Lost Mountain and Burnt Hickory Ridge, which are located only a few miles from the mine of the Southern Railway, have been the most extensively prospected, but the work has been done in such an unsystematic method that it is difficult to say how good the prospects are, although from panning tests it is safe to say that the district is really a promising field.

To the southwest of these ridges, but in the same county, in the neighborhood of Powder Springs, is located one of the few corundum mines which have proved profitable in this section. A short distance south of this and immediately on the line of the road are located the mineral springs known as the Bowden Lithia Springs. These have been improved and developed by the proprietor, E. W. Marsh, of Atlanta, to such an extent that several hundred gallons of water per day are shipped in carboys to Atlanta for distribution in that and neighboring cities. This water has gained a great reputation and from its analysis ranks with the Lithia waters of North Carolina and other sections.

As the road crosses into Douglas County it crosscuts for about 40 miles the belt of mica schist and hornblendic rocks, which is really a southwestern extension of the auriferous formation of Lumpkin and Cherokee Counties, while a short distance north, in the county of Paulding, we find a belt of semi-crystalline slate which carries a very large percentage of iron pyrites, are said to have analyzed as high as 52% in sulphur by carload lots. In the same vicinity we find manganese in commercial quantities and a good strong vein of magnetite, as well as some gold prospects in these semi-crystalline slates which underlay the fully crystalline formation already referred to, the dip of the strata being to the east.

Villa Rica, in Carroll County, a station on the road 45 miles from Atlanta, has always been considered the center of the operations of gold mining in this immediate vicinity. Within a short distance from the town the most extensive prospecting work found on the line of this division of the road has been done. At the present time there are three companies actively operating, or rather prospecting in this gold field. The number of discoveries of the occurrence of auriferous quartz within 15 miles of Villa Rica, either to the northeast or southwest of the town, are almost as great as around Dahlonega.

Pine Mountain, an extensive property owned by a wealthy spinster named Miss Stone, of Brooklyn, is located some four miles to the northeast of the town. Although idle at the present time, this mountain has been the scene in the past of work of considerable extent, if we judge from the numerous shallow open cuts, pits and tunnels which one finds covering the top of the mountain. In all of these gold-bearing ore is exposed, but the work has been such as to render it impossible to form any estimate of the quantity of ore, or even the structure of the ore bodies.

An English company has been prospecting to some extent for some months past on land located a few miles to the east of Pine Mountain, and I understand are still prosecuting the work. Within a mile and a half of the town of Villa Rica the Clopton Company, an organization formed by a Boston syndicate, has erected a very large plant for the treatment of gold ores, and is at present developing the property to ascertain the quantity of ore available for treatment. Immediately southwest of the Clopton Company's property lie the mine and plant of the Villa Rica Mining Company. Here mining and milling operations have been carried on almost continuously for the last 15 years. The ore has been mined, though, by such a system that it is impossible to determine the quantity in sight, the work done having been apparently with a view only to the present time and an utter disregard to future development. A 10-stamp mill has been used for the treatment of this ore and amalgamating plates the only method practiced for saving the gold.

To the southwest some fifteen or eighteen miles, and in the same belt of formation, is located the old Bonner gold mine, which has been a landmark among the gold mines of the Southern States for the past sixty years. Previous to the war this was worked entirely as a placer property, but since then two or three efforts have been made to develop its value as a quartz proposition. For several years this property was the subject of bitter litigation and consequently remained idle. It embraces nearly 1,400 acres of land and from the excavations and piles of tailings which are scattered over it, and along every branch and creek which flow through it, it would appear as though a good deal of truth was included in the stories of fabulous richness, which we are told it possessed half a century ago. No systematic effort, however, has ever been made to thoroughly prospect the property and ascertain its value.

As the line of the railroad enters the county of Harralson, east of the Alabama border, it leaves the fully crystalline formation and enters the semi-crystalline. The mineral resources of Harralson are an unknown quantity to-day. There is, though, in this county, the old Camille mine, which is owned by a company of capitalists at Natchez, Miss. A few years back over $100,000 was spent in developing the mine and erecting a hoisting plant, mill and concentrating plant. Work, though, was suspended about 1889, and has never been resumed on any extensive scale. At present parties who have recently obtained a bond on the property

are unwatering the lower levels and purpose testing the ore by treatment, as well as prospecting the underground workings thoroughly. The ore is very highly sulphuretted, and at the time operations were carried on, of course, the practice of metallurgy was not nearly as far advanced as to-day, consequently this may have been responsible for the suspension of work the old company. The workings in the mine consist of an incline shaft 286 ft. in depth, and short drifts run off at various levels.

Crossing the Alabama line, this division of the Southern Railroad passes through the center of Cleburn County, and near its Western line the road passes out of the crystalline area and into the paleozoic.

Within 10 or 12 miles south of the station of Heflin is located the historic placer mining camp of Arbacoochee, and within about the same distance to the southwest of the same station the district of Chullafinee, which 50 years ago was of almost equal importance in the production of placer gold as the first named. Further south we have the gold mining districts of Randolph and Clay counties, as well as the mica mines of the same counties, which are all tributary to this road. In describing this section it is only fair to state that its past history and statistics as to the quantity of gold produced place it in the first rank among the gold producers of the Southern States. Prospecting and developing work both are carried on at different localities all the time, but during the past few years it has been impossible to obtain any reliable figures as to the product. The old Pinetuckey, after lying idle for years, has been bonded by Chicago parties who have been conducting work of a prospecting nature, and sinking a new shaft for the purpose of opening up virgin ground at greater depth than has been before obtained.

The Eccles mine is being slowly developed by its owner, who is an old Western prospector, and carries on this work in much the same manner as he would in the West. Another large body of ore which is exposed in the Wise mine awaits the pick of the prospector. Since the death of the owner of a half-interest in this property no effort has been made to resume operations, which were carried on in 1893, by a Colorado miner, under lease.

The recently reported rich finds in the Arbacoochee district are being prospected by the holders of the bonds for title, but much activity will not be shown until payment for the property is made, because the contract does not permit of the treatment or mining the ore.

As the railroad passes out of this gold region it enters a mineral-bearing section, which, while it is not surrounded by as much romance, yet will in all probability prove in the end to possess a much greater economic value; this is the brown iron ore belt of Calhoun County. In the extreme eastern part of the county we find the Iron City deposits of limonite located immediately adjacent to the road, and only a short distance further west we are traversing the iron ore mines of Anniston and vicinity. Although these are idle at present, yet such extensive repairs are being made in the coke furnaces of the Woodstock Iron Company, since its reorganization, as to encourage the belief that one at least of these furnaces will be put in blast shortly. It is at Anniston that this division of the Southern Railway crosses the East Tennessee Division; the resources of the territory through which that passes will be made the subject of a future article.

Leaving Anniston and traveling westward we do not encounter any other developed mineral resources for a distance of some 40 miles, where, at the crossing of the Coosa River, the road really enters the southern extremity of that coal-field known as the "Coosa." The line of the road here is really some 15 or 20 miles south of the scene of active operation in this field, which may, however, be considered tributary to it because the product is chiefly transferred to its trains at Pell City, at the junction of the East & West Railway of Alabama with the Southern.

It is only a short distance west from here that the road enters the Cahaba and the Warrior coal-fields. Henry Ellen mines are the first the traveler sees from the cars. These, after having remained idle for some time, are being actively operated. From this point into Birmingham the country tributary to the line of railroad may be considered as belonging to the Birmingham district, the mineral resources of which have been the subject of comment and criticism to such an extent that it is unnecessary to call attention to them.

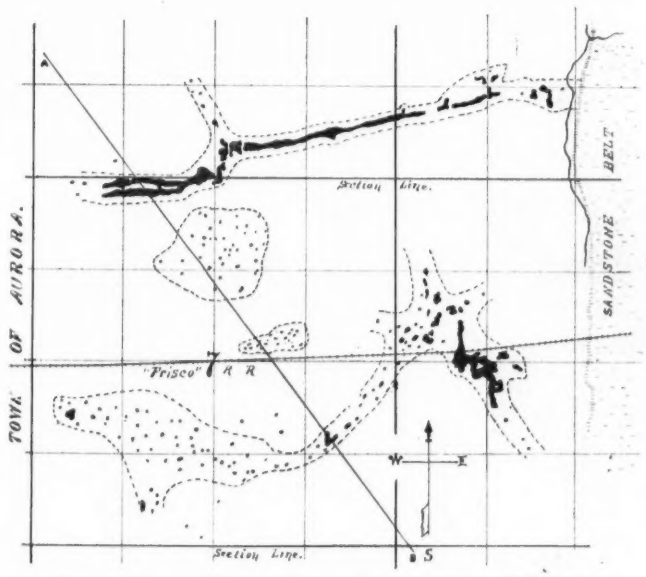


FIG. 1.—MAP. MINING DISTRICT OF AURORA, MISSOURI.

THE ZINC MINES AT AURORA, MISSOURI.

Written for the Engineering and Mining Journal by H. K. Landis.

These mines are located adjacent to the town of Aurora, in the south central part of the State, population about 6,000. The town owes its existence practically to the discovery of zinc and lead ore in November, 1886 when it at once became a centre of interest for Missouri mining men, though it had existed as a village since 1872.

Mr. Lyells, while digging a well in his orchard, struck a deposit of galena; the news spread rapidly and all the orchards in the vicinity were immediately prospected, resulting in a large number of small prospect holes which are even now known as "The Orchard." No shipments were made till May, 1887, when a carload of ore was sold. The tonnage shipped during 1888 and 1889 is not obtainable, as no record was kept; since that time the following shipments were made:

Yrs	Galena lbs.	Carb'nate lbs.	Silicate lbs.	Zincblende lbs.	Chats lbs.	Total. Lbs.	Sh't. tons.	Value.	Royalty.
1890	7,192,427	515,600	16,772,779	3,974,087	.....	28,454,953	14,278	$43,814,661	$8,173,571
1891	7,586,279	230,937	21,771,873	8,615,875	3,357,076	41,562,040	20,781	43,814,510	8 402.517
1892	8,096,251	411,710	21,023,136	11,336,582	5,944,290	46,811,969	23,406	45,274,318	7,933,201
1893	7,211,141	475,925	26,850 285	20,672,050	6,284,933	61,494,334	30,750	47,159,798	7,748,083

It will be noticed that the ores near the surface, occurring in the order of first carbonate of zinc and galena and below that silicate of zinc, were produced in nearly the same quantity each year, the deeper lying silicate increasing slightly while the underlying blende has increased rapidly as depth was attained. This, of course, indicates an increase in deep mining, and an increase in the number of large plants operating. The prices paid for these ores are difficult to arrive at accurately, as the miner accepted what he was offered, the amount depending upon the judgment and it is said often upon the temper of the buyer. One of the oldest companies on the Black Land gives the following prices received:

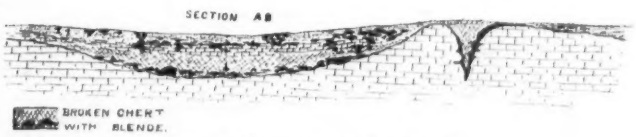


FIG. 2.—SECTION ON LINE A B.

Average price of ore at Aurora.

	Galena per 1,000 lbs.	Zincblende per short ton.	Silicate per short ton.
1886	$24.40	.....	$7.00
1887	23.80	.....	8.60
1888	22.00	$22.00	10.50
1889	21.50	23.00	13.00
1890	25 00	24.00	13 50
1891	25.40	23.00	13.70
1892	23.30	24.00	14.00
1893	19.58	17.50	10.00
1894	18.00	17.00	9.00
1895	17.50	19.00	.....

Though prices have been declining for the past few years, there is an upward tendency at present which is likely to cause new development. The price of galena from various mines runs fairly even as there is not much trouble in concentrating it clean. The calamine varies in price as it frequently contains such impurities as chertsand, particles of chert, limestone or dolomite, and even blende. The latter, though a zinc ore, remains unreduced in the zinc retort where the calamine is charged uncalcined and is consequently lost. The consequent reduction in price for impure calamine varies according to the quantity of impurities present, so that while good silicate ore sells for $10.00 per ton, "chat" ore will command but $6.00 per ton. The principal impurity in blende is iron pyrites, which is a serious drawback, as iron oxide in the roasted ore unites with the retort, eating holes into it through which the distilled zinc escapes and which by admitting the oxygen or by other means, prevents further reduction.

Lead is also deleterious, as it is reduced with the zinc and enters into the spelter. The price of blende varies according to the estimated quantity of impurities present.

Each quarter section is divided into mining lots either 100 or 200 ft. square. Miners wishing to develop one of these lots simply signs the mining rules of the leasing company, and begins work without further ceremony. The following rules are a fair example of those adopted by companies:

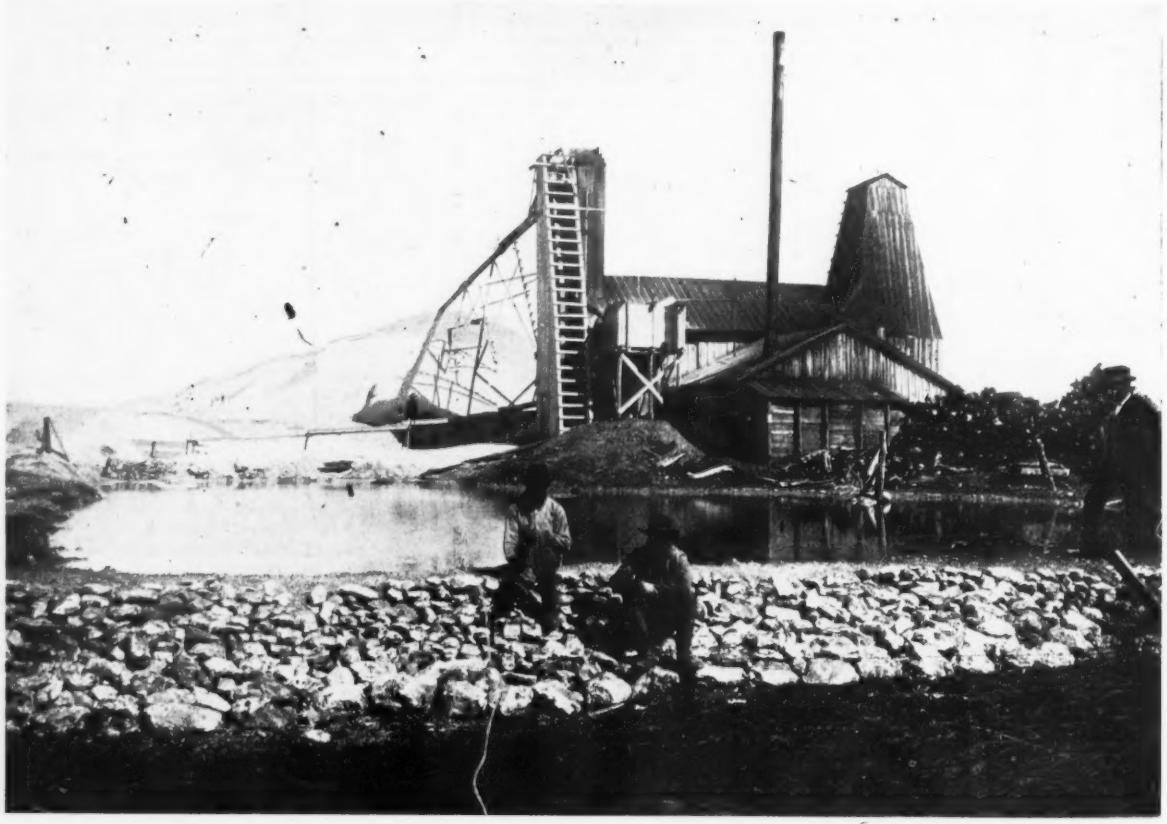
MINING RULES OF THE BUCKEYE LAND, OF AURORA, MISSOURI.

Notice is hereby given in accordance with the provisions of chapter No. 115 of the Revised Statutes of the State of Missouri, of 1889, on "Mines and Mining," that the undersigned have made and do hereby make and publish the following statement of the terms, conditions and requirements upon which the following mining lands, owned, leased and controlled by them, may be prospected and mined, said lands being the south half of the northeast quarter of Section six (6), in Township twenty-six (26), Range twenty-five (25), situated in Lawrence County, Missouri.

Rule 1. Any person desiring to mine on said land, shall first obtain the consent of the Superintendent, which being obtained, he shall sign his name on the company's register, opposite the number of lot upon which he proposes to mine, which will subject him to the rules herein contained. The right to mine upon any lot shall commence from the date of such signature.

Rule 2. Parties mining on any lot or lots agree to work the same faithfully and continuously in a good, workmanlike manner, and to be guided by the instructions of the Superintendent, and agree that a shaft shall be sunk on each lot held by them under lease, and should they fail to work the same three days in each calendar week, or violate any of the provisions of these rules, without written permission from this company, the same shall work a forfeiture of any and all rights and claims to said lot or lots, and the company may enter and take possession without any previous demand, notice or legal proceedings whatsoever and may use all neceseary force to do so. It is agreed that neither the company, its officers, agents or employees shall in any manner be liable in damages for any such force used.

Rule 3. No sub-leasing or renting of lots will be allowed without written consent of the company. No transfer of lots or mining claims or rights will be recognized by the company unless the parties purchasing or acquiring such lots, claims or rights have received permission from said company to mine such lots or claims.



MINING PLANTS AT HAYES CITY, AURORA.

Rule 4. All shafts or drifts must be held up in good shape, and where timbers are required they must be put in in good workmanlike manner, and extraordinary size drifts must not be cut until approved by the superintendent of the company, who will have the right to enter at any time and inspect any mine on company's lands, and stop the work of any parties who are not mining in a safe and workmanlike manner and are not keeping their ground in a safe condition, for the proper holding up of the lands.

Rule 5. All ores must be cleaned in first-class order and they must be cleaned and made ready for market on the lands of the company.

Rule 6. The company reserves the right to use the surface of said lands, in erecting wash places, tramways, spouting or machinery of any kind, or to make any improvements for the benefit of said land. No parties other than the company, or parties authorized by it, are to use such surface other than for mining purposes. Persons mining said lots shall only acquire a mining right on said land.

Rule 7. The royalty paid the company on all mineral taken from their land shall be 25%, but until there is a pump or pumps in operation on such tracts by the company, or some one authorized by the company, a rebate of 5% will be allowed from the above royalty.

Rule 8. Miners will be allowed to receive bids for ore from responsible buyers that are authorized to purchase of the company's lands, the company reserving the right to keep the ores at the highest bid, provided in all cases all ores must be weighed on the company scale or scales designated by the company, and payment made to the company, who will settle with the miners, first deducting the royalty as above provided, and any claims the company has for advances made or supplies furnished.

Rule 9. Water in a shaft will hold a lot only at the option of the company.

Rule 10. No property right shall be acquired by any miner to any ore on or in said land, except the price or value of mining and cleaning the same.

Rule 11. No rock, sand, gravel, chats or wash dirt shall be removed from these lands without permission of the company.

Rule 12. All leases under these rules expire January 1st, 1897.

A miner is supposed not to be allowed to sell ore without the approval of the mine owner. The buyers sent out by the smelting companies sometimes live in the camp and keep watch on desirable lots of ore. After inspecting the ore and agreeing on a price in accordance with its appearance and occasional analyses, the buyer freights and weighs it on the owner's scales, or that of some adjacent company, and pays for it. Settlements with the individual miners and leasors are once a week, when the royalty and all advances of cash or supplies are deducted.

The company is usually officered by the owners, who receive no compensation. The superintendent receives $3.00 to $3.50 per day.

COAL IN WESTERN NORTH CAROLINA.

Written for the Engineering and Mining Journal by William B. Phillips.

While prospecting recently along Wolf Creek, Cocke County, Tenn., a few miles from the North Carolina line, there was shown to me a piece of shale so closely resembling that so commonly found in association with coal that my attention was at once arrested by it. On inquiry it was found that it came from the Jack Branch, a small stream flowing into the French Broad River, from the North, about three miles below Hot Springs. In spite of the severe weather I rode across country to the Jack Branch and was fortunate enough to fall in with Mr. Thomas Garrett, Hot Springs, N. C., who was prospecting for coal on the Jack Branch. I visited the locality and found that a drift had been made into the side of the mountain a quarter of a mile from the river and about 250 ft. above it. The rocks were very much disturbed and the roof was bad, but he had persevered until some small seams of coal, anthracitic in character, had been discovered. I made a very close inspection of the drift and the material obtained from it. At the mouth of the drift a close grained quartzite lies immediately upon a greenish slate, enclosing near the junction of the two a narrow seam of decomposed carbonaceous matter resembling the "rash" of the coal miners. A few feet under cover this gave way to thin seams of much harder substance resembling an impure anthracite coal. These seams vary from ½ in. to 2 and even 3 in. in thickness and appear to follow the line of contact between the quartzite and the slate or shale. At the end of the drift, which at the time of my visit on the 12th of December was 50 ft. in length, the quartzyte was badly broken, but the underlying shale was much firmer and did not appear to have shared in the dislocation of the overlying rocks. Upon breaking the quartzite there was exhaled a strong odor of petroleum and the thin seams of coaly matter also smelled strongly of this substance. The bearing of the enclosing rocks is toward the Northwest, the dip being about 35 S. W.

In cutting a wagon road up the Jack Branch in the Spring of 1895, Mr. Garrett found a thin seam of a coaly material. He noticed also that on the little pools of water along the branch there was oil. No investigations were made until about the 1st of November, and they are still in progress. The locality is on the North side of the French Broad River (the Southern Railway from Salisbury to Morristown runs on the South side) and three miles below Hot Springs, Madison County, N. C.

The geological age of the district has not been positively settled. By some authorities (W. C. Kerr, late State Geologist of North Carolina.) it is put provisionally in the Huronian. He says (Geology of North Carolina, page 138): "The section on French Broad begins at the State line near Paint Rock in Madison County. The vertical cliffs along the river gorge at this point are gray and light-colored quartzose sandstones and quart-

zites, with occasional thin beds of dark gray clay slate. Passing up the river (and therefore toward Jack Branch and Hot Springs P.,) we find these quartzites interbedded with and finally replaced by shales, and then by thick bedded grits and conglomerates, or breccias. These are succeeded by heavy beds of argillaceous slates and shales, brown and gray, and at Warm Springs, about six miles, by compact blue and gray limestones and a calcareous gray sandstone, and half a mile above by vertical cliffs of much jointed quartzites, which continue for nearly two miles with little interruption, and give place, just below the mouth of Laurel River, to blue and gray clay slates and coarse conglomerates, which outcrop again five or six miles southwest on Shut-in-Creek. Above Laurel River come in heavy beds of greenish and redish felspathetic quartzites and gneissoid rocks for more than a mile, and then gray, dark blue, and spotted argillaceous slates, after which the gneisses and hornblende slates and crystalline limestones of the Laurentian succeed. This cross-section would make nearly ten miles in a direct line. The disturbance, the folding and crushing of these strata, has left them in such disorder that it is difficult to make out their position with any satisfaction, but after leaving the almost horizontal strata of the cliffs at Paint Rock, the dip, which is generally between 40° and 70°, is predominantly easterly, but with many exceptions until the Warm Springs belt is passed, after which the dip is reversed, for the most part, through a section of several miles about Laurel River. . . . This belt of rocks is colored on the map throughout like the other Huronian belts, and for the same reason, viz.: that they succeed the Laurentian and differ from them strongly in degree of metamorphism and general lithological character, so that the transition from one end to the other is obvious along the whole extended line of contact, and that they have yielded no fossils, which alone could authorize their reference to a later age. And although the fact of unconformability can not be asserted for any one of the sections, this may arise from the circumstance that the disturbance and dislocation of the strata along this line are extreme, and that no detailed or minute examination has ever been attempted." . . .

Prof. Kerr evidently inclined to the belief that these recks were Huronian, but Prof. Safford, State Geologist of Tennessee, made the Paint Rock sandstones Chilhowie or Potsdam, and the grits and conglomerates below and above Warm Springs, Ocoee, or sub-Potsdam, and the limestone he referred to the Knox Dolomite, above the Potsdam. Prof. Bradley, of the University of Tennessee, Knoxville, made the age of the sandstones, conglomerates and quartzites with the associated rocks of the lower Tennessee and the Nantahalah to be Primordial, which was the same as if he had said that they were of the Ocoee and Chilhowie of Safford, and the limestones of Valley River he refers to the Knox Dolomite. The Valley River limestones appear to be of the same age as the limestones below Hot Springs, i. e., Knox Dolomite.

Aside from questions affecting the proper geological age of these rocks, which may well be left to those skilled in such matters, it must be said that the recent discovery of impure coal, of petroliferous rocks and of oil in the district is to be taken as evidence that they are of a later horizon than has been so far given to them. No detailed and careful examination of the district has ever been made, the researches so far having merely scratched the surface of a most interesting and important subject.

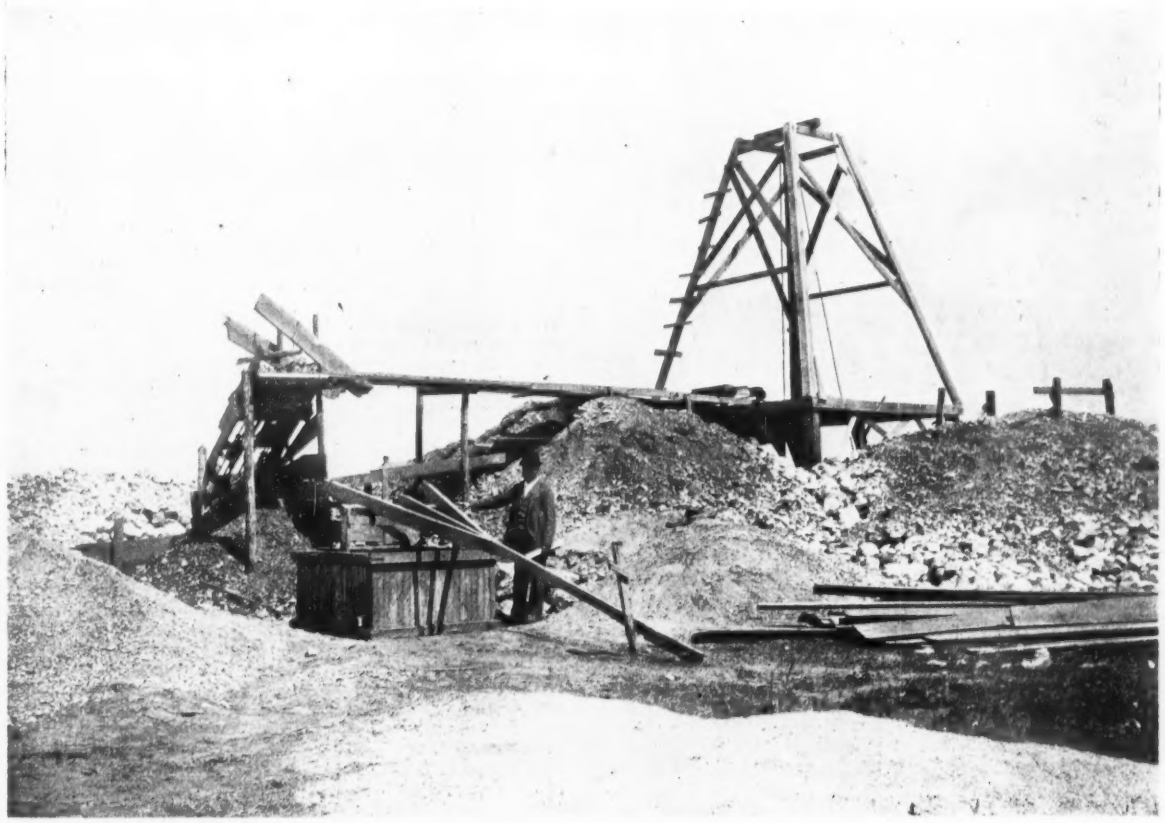
It can not be positively said that coal, or oil or gas does exist there in paying quantities, nor would one be warranted now in saying that the outlook is encouraging. Enough has been done, however, to justify the opinion that in a region heretofore considered as far below the horizon for coal or oil both have been found, and the geological history of the region will have to be attacked from another standpoint. All the country lying between Laurel River in Madison County, N. C., and Paint Creek, Greene County, Tenn., will have to be carefully investigated with respect to its true age, and the relations sustained by the sandstones, grits, and shales to other and better known coal and oil districts.

The intention of this article is merely to call attention to the discovery of coal and oil where neither has been suspected, and to urge upon the field geologists to examine the region with these new facts in mind.

On the Jack Branch there has been considerable dislocation of the rocks, so much so that the thin seams of coal have been pressed and twisted in various directions, sometimes even into the fissures of the sandstone roof, and on the opposite side of the branch from the drift there is the greatest confusion among the strata. It may be that we have here to do with a slip and that the main body of the coal, should it ever be found in a regular seam, will not be found at this place. At the head of the drift particularly the sandstone has been badly broken and between the joints the coaly matter has the appearance of anthracite. It may be that the oil in the strata has suffered decomposition and that the coal-like seams have resulted from heat and pressure, and do not indicate the existence of a regular coal seam. Some of the phenomena would appear to indicate that some such occurrence has taken place, for the coal seams are at times striated and have that bright, glistening look that accompanies high pressure on similar material.

Too much credit can not be given Mr. Garrett, who at his own expense has undertaken to investigate the matter and that in the face of considerable difficulties, the discouraging expressions of his neighbors, the adverse opinion of the geologists who have been in the district, but who, it must be said, did not give much time to it, and last, but by no means least, the severe weather. The mountains are covered with snow and work of this kind is not promoted by cold and disagreeable weather.

The district cannot be examined in a day or in a week or in a hasty trip of any kind. There have been too many generalizations as to the region based on a horse-back ride up or down the river. One rides along and jots down in his note book that the rocks are Huronian. He puts them down on the map as Huronian, and Huronian they are until Prof. Pick and Shovel adduces strong testimony to the contrary and forti-ties his opinion by finding coal and oil. No one can say whether either the coal or the oil will be found in paying quantities, but that they are found at all is something.



A TYPICAL SURFACE PLANT IN THE AURORA DISTRICT.

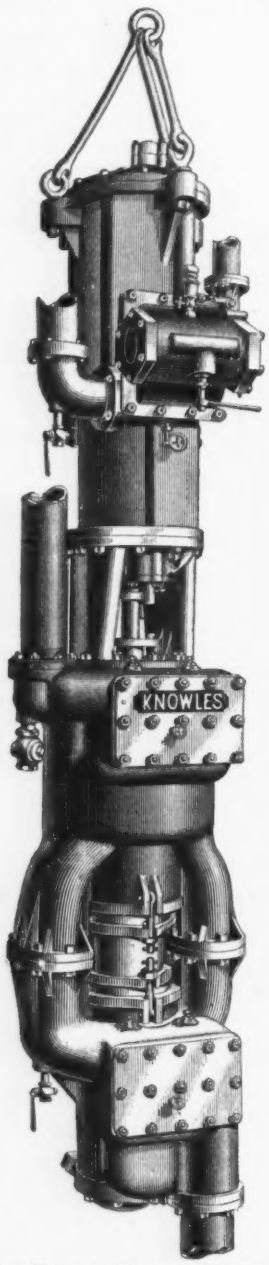
Mining Schools in Russia.—The Russian Ministry of Public Instruction has decided to establish mining schools on a large scale in the mining districts, especially in the province of Ekaterineslav. The school will cover all branches of the subject, and the idea will be followed up to a considerable development if the results are encouraging.

The exports of briquettes from Belgium in September amounted to 42,243 tons, as compared with 49,921 tons in September, 1894, and 56,324 tons in September, 1893. The aggregate exports in the first nine months of this year were 347,912 tons, as compared with 441,881 tons in the corresponding period of 1894, and 370,906 tons in the corresponding period of 1893. In these latter totals the exports to France figured for 127,987 tons, 173,051 tons, and 174,091 tons respectively. It will be seen that the exports of briquettes from Belgium are now declining, and that the rate of reduction became more marked in September.

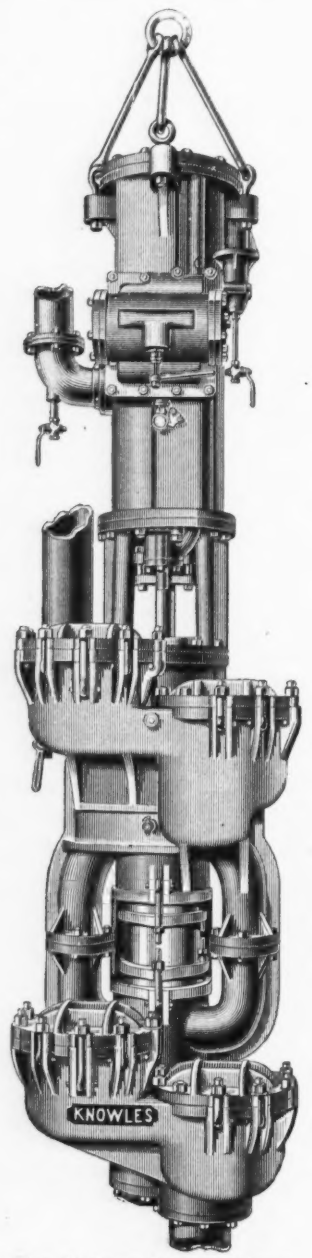
A NEW DESIGN FOR SINKING PUMPS.

The limitations of space often encountered in work requiring sinking pumps has caused a large amount of time to be spent in reducing the dimensions of such pumps to a minimum, without cutting down their capacities.

The Palmer Special sinking pump, which is manufactured by the Knowles Steam Pump Works, two illustrations of which are shown herewith, can be worked in a very small space and shows a large capacity as well as strength for high pressures. In this pump there are two steam cylinders precisely alike in size and action, placed tandem, their pistons being directly connected to the rod actuating the water plunger. This arrangement of steam cylinders secures twice the capacity, theoretically, of one occupying the same shaft space, while, since there is hardly any increase in the number of moving parts or amount of internal friction, more than double the ordinary duty is obtained in actual service. In the size illustrated the cylinders are each 16 in. in diameter, and the double acting plunger is 12 in. in diameter, giving a capacity of 587 gals. per minute, at



THE PALMER SINKING PUMP.



THE PALMER SINKING PUMP.

a piston speed of 100 ft. per minute. The common stroke of steam cylinders and plunger is 20 in., and the speed of piston travel can run up to 200 or 210 ft. per minute, in case of emergency, corresponding to a delivery of from 1,175 to 1,230 gals. per minute, which is said to be more than three times as much as can be handled by other types of pumps which can be passed endwise through the same opening. As will be noted from the illustrations, a high and low pressure pattern of the pump are manufactured. The dimensions over all of the pump for water pressures up to 125 lbs. per square inch are 14 ft. 7⅛ in. × 40⅛ in. × 38½ in. Its weight is 10,200 lbs. For pressures up to 200 lbs. the dimensions are 14 ft. 8¼ in. × 46 in. × 39 in. The weight of this pattern is 13,600 lbs.

Extra heavy pot valves of late design are used on the water end of the high pressure pattern, with free swinging cover bolts, allowing quick and easy access whenever necessary. The valves themselves are of vulcanized rubber, working on seats of gun metal composition.

One of these pumps was placed in the Argentum-Juniata mine at Aspen, Colo. (which had been flooded for two years previous), after a severe preliminary test at the Mollie Gibson mine, during which it was run at a delivery of from 610 to 1,730 gals. per minute, under a varying head of from 150 to 425 ft. vertical lift, with a steam pressure of 85 lbs. at the pump.

During a practically continuous run of 90 days it lowered the water in Argentum-Juniata mine a vertical distance of 709 ft., the actual time consumed in beating down the water being 30½ days, while for the balance of the time it was holding the water during the placing of a new Knowles compound condensing duplex pumping engine at the 400-ft. level, and the cleaning and starting of the two Knowles pumps at the 600-ft. and 900-ft. levels respectively, which had been under water continuously for more than two years. During this service the Palmer sinker was lowered and operated through a shaft opening of 4 ft. × 5 ft. in the clear, was not backed up a foot during the entire time, and worked at an average delivery of from 700 to 900 gals. per minute, sometimes being pushed to 1,000 or 1,100 gals. for several consecutive days.

In September, 1895, a Palmer special sinker was started in the Gregory Incline at Black Hawk, Colo., and in 15 days' continuous pumping lowered the water a vertical distance of 105 ft., lifting at an average about 800 gals. per minute through a 6-in. column, and at times more than 1,000 gals.

The German Iron Industry.—According to the monthly returns published by the Association of German Iron and Steel Makers, the output of pig iron in the German Empire, including Luxemburg, during the month of October has amounted to 511,264 tons, against 490,934 in October, 1894. The output is made up of 113,967 tons puddling pigs and spiegeleisen, 38,494 tons Bessemer pigs, 267,247 tons of Thomas pigs, and 91,556 tons of foundry pigs. The total production during the ten months from beginning of January to end of October amounts to 4,788,571 tons, against 4,579,180 tons during the same period last year, an increase of 209,391 tons.

The magnitude of the trade that lies undeveloped at our doors is something worth considering. Mexico, our nearest neighbor, in 1893 imported products from the whole world aggregating $30,000,000, of which we furnished $14,000,000, or 47%; the Central American states took $5,125,000 worth of our goods; South America, $33,000,000; Cuba, $18,000,000 worth. This can be doubled with little effort, for in many instances, as in the case of Cuba, where we take 78% of all exportations, we use a large proportion of products sent out. The Pacific Ocean, however, is to be the active field of the greatest commercial development during the next century. Japan imports $98,000,000 worth of goods annually, China, $235,000,000, while Corea, Australia, Hawaii and other islands bring the sum total up to something like a round billion dollars. With more than 500,000,000 people waiting to be supplied with the necessaries of civilization no adjunct in marine and canal equipment should be overlooked that will enable American manufacturers to secure an outlet for their surplus in iron and steel, machinery and agricultural implements.

Mexican International Exposition.—Under an act of the Federal Congress of Mexico, granted on January 9th, 1895, the Mexican Government has authorized an International Exposition to be opened in the City of Mexico on September 15th, 1896, which it is hoped will embrace a representation of manufactured products from all parts of the world. For the convenience of manufacturers The Mexican International Exposition has opened an office in New York at No. 45 Broadway, Aldrich Court, the managers of which will be prepared to answer all inquiries which may be sent them as to space, terms and conditions. At the same time information will be sent from week to week to exhibitors in regard to the progress of the exposition, and any questions as to consignments of goods, customs duties, etc., will be cheerfully answered without delay. It is hoped that, since this exposition is the first of its kind ever held in the Republic, it will be, through its novelty and the attractions of the country, a means of drawing to Mexico a large number of buyers from the Southern Republics, and thus insured to manufacturers a larger market than Mexico would in itself offer. It is also believed that the scenic attractions of Mexico will draw from Europe, from the West Indies, and from the United States a large number of persons who have heretofore spent their money it European travel, and who may be induced to alter their trips to our Southern and sister Republic.

Iron and Steel in Sweden.—According to the report laid before the last meeting of the Swedish Union of Ironmasters, the exports during the present year up to the end of July were: Pig iron, 38,338 tons; ingots, 2,019 tons; blooms, etc., 6,518 tons; bar iron, 80,044 tons; cuts of bar iron, 2,023 tons; wire (rolled), 1,048 tons; wire (drawn), 233 tons; plate iron, 1,871 tons; nails, 1,406 tons, showing an increase of close upon 20,000 tons as compared with the corresponding figures last year. Of this increase about 7,000 tons is in pig iron, and 10,000 tons in bar iron. The quantities upon which bank loans had been raised were: Pig iron, 29,011 tons; bar iron, etc., 12,737 tons; blooms, etc., 9,246 tons; ingots, 9,953 tons; other kinds, 7,059 tons, or close upon 8,000 tons less than at the same time last year. During last quarter there were in operation 132 blast furaces, 291 furnaces, 28 Bessemer converters and 25 Martin furnaces. The output during the first six months of the present year was: Pig iron, 264,568 tons; blooms, 91,588 tons; Bessemer ingots, 52,123 tons; Martin ingots, 47,456 tons, which is about 18,000 tons less of blooms, and over 18,000 tons more of Bessemer and Martin ingots, than for the corresponding period last year. For the 10 years the greatest export during the first half of the year was in 1890, when it reached 125,200 tons, and the smallest during 1888, when it was 89,500 tons. In addition to the increase in the exports of the first half of the present year, it should be mentioned that most of the iron works are well filled with orders, so there is every reason to expect that the rate of increase will be maintained during the remaining portion of the year. A considerable portion of the pig iron exported was in completion of contracts from the previous year, but a number of fresh orders has been secured. There is reason to believe that the bulk of the output of finer pig irons has already been disposed of.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

COURT OF CIVIL APPEALS OF TEXAS.

Homestead Right to Royalty from Coal Mined Under.—Royalty due a homesteader from coal mined on the homestead is subject to his debts.—Collins Manufacturing Company vs. Carr, 32 Southwestern Reporter, 366.

SUPREME COURT OF CALIFORNIA.

Location of Mining Claim in Another's Name.—Where one, acting under the statutes of the United States, vesting in a locator of a mining claim the exclusive right to its possession, locates and has a mining claim recorded in another's name, the legal title thus vested in the other cannot be defeated by a subsequent parol agreement that it is to be held by him in trust.—Moore vs. Hamerslag, 41 Pacific Reporter, 805.

SUPREME COURT OF PENNSYLVANIA.

Sale By One Co-tenant of Mining Lands.—The terms of a contract of sale by which one co-tenant of mining lands disposed of his interest, will not bind the others to accept the royalty reserved by such sale as a fair measure of their rights. It also held that such purchaser should not be enjoined from mining, but that an account should be kept of the coal mined, and that he should pay into the hands of a receiver twice that reserved by the contract to be paid, until the values could be determined. Mercur vs. State Line & Sullivan Railroad Company, 32 Atlantic Reporter, 1126.

Tadpoles as Pole Finders.—A French physician has found that if an electric current be passed through water in which a tadpole is swimming, the animal will immediaely turn so that its head is toward the anode; or, in other words, so that the current passes into its mouth and out from its tail; its head will therefore always point towards the positive pole. The effect on a lot of tadpoles in the same vessel said to be quite amusing.

Belgium.—The production of pig iron in Belgium during last month and during the first ten months of the year, as compared with the corresponding periods of 1894, is shown in the following table:

	October. 1895. Tons.	October. 1894. Tons.	First ten months. 1895. Tons.	First ten months. 1894. Tons.
Foundry pig	6,820	6,820	71,020	66,220
Steel pig	35,650	32,860	323,280	313,660
Forge pig	27,325	37,820	297,265	338,060
Totals	69,795	77,500	691,565	747,940

Scientific.—Quantitative Separations of Metals in Alkaline Solutions by Hydrogen Peroxide.—Messrs. P. Jannasch and E. von Cloedt have communicated to "Zeitschrift fur Anorganische Chemie" the results of some experiments in the separation of the metals in alkaline solution by hydrogen peroxides. As an initial point for their experiments the authors used pure metallic bismuth and mercuric oxide. The weighed quantities were heated in a covered porcelain capsule with 10 ccm. of concentrated nitric acid and 50 ccm. of water on the water bath, until completely dissolved. The liquid was then slowly poured into a mixture of 25 to 30 ccm. of concentrated ammonia, 25 ccm. of hydrogen peroxide at 3 to 4% and 50 ccm. of water. There ensued a brisk effervescence of escaping oxygen, and the bismuth subsided as a yellowish-gray deposit of hydrated peroxide. It was then dissolved on the filter in dilute hot nitric acid, again precipitated as before filtered and weighed in a platinum crucible as bismuth peroxide. Since for precipitating the bismuth they used hydrogen peroxide purified by distillation in vacuo, no correction for silica, alumina, etc., is needed. Messrs. Jannash and Cloedt advise, however, that the pure hydrogen peroxide should be used as fresh as possible, since its solutions on prolonged standing seem to attack sensitive kinds of glass, and may thus be anew contaminanted with silica. If the first deposit of bismuth is washed with extreme care, a single precipitation is sufficient for accurate separation. For the determination of the mercury the entire ammoniacal filtrate is evaporated down for the complete expulsion of the excess of ammonia, strongly acidified with sulphurous acid, the liquid poured into a larger beaker, diluted to at least 300 ccm., and lastly precipitated at a moderate heat with sulpheretted hydrogen. The further treatment of the mercury sulphide and its weighing are effected in the usual way. The separation of lead and mercury is effected by pouring the solution of the nitrate, acidified with nitric acid, into the ammoniacal oxidizing liquid. The results are very satisfactory. It must be observed that, prior to filtration, the lead precipitate is allowed to stand for some time (30 minutes to 1 hour), with occasional stirring, as otherwise traces of lead may reman in solution. The lead hydroperoxide is filtered off, well washed with cold water, dissolved on the filter in dilute nitric acid (equal to about 10 ccm. of the concentrated acid), with a simultaneous addition of hydrogen peroxide, and precipitated again in the same manner. The separation of manganese and mercury is effected with great ease, which appears the more remarkable as manganese—to consequence of its tendency, when in the state of peroxide, to carry other oxides down with it—is apt to frustrate the smooth course of an analysis. The authors took, as their initial point, manganese-ammonium sulphate and mercuric oxide. From 0·3 to 0·4 g. of each substance was dissolved in 50 ccm. water and 10 ccm. of concentrated nitric acid. This mixture is added to a liquid of 30 ccm. hydrogen peroxide, 30 ccm. strong ammonia, and 50 ccm. water. After heating for 30 minutes in a covered beaker on the water bath, the precipitate is filtered and washed with a mixture of water, ammonia and hydrogen peroxide, and finally with hot water. The precipitate may be ignited in a platinum or porcelain crucible, either while still moist or after a partial drying. The coarser particles are carefully crushed, and the ignition is continued until the weight becomes constant.

PATENTS RELATING TO MINING AND METALLURGY

TUESDAY, DECEMBER 10TH, 1895.

550,943. Calorimeter. Rolla C. Carpenter, Ithaca, N. Y. Combination a combustion chamber located in a closed fluid chamber and arranged to impart the heat produced by combustion to the fluid within the fluid chamber, and a volume measuring device connected with the fluid chamber and arranged to indicate variations in the volume of fluid.

550,944. Coal-Mining Cutter-Wheel. William J. E. Carr, Leavenworth, Kan. Combination of a sleeve having a bearing in the main frame, an arm integrally connected with the sleeve, flanges on the arm, guide shoes secured to the main frame and engaging the flanges, a cutter wheel mounted on the arm, a drive wheel box operating cutter wheel having its shaft journaled in the sleeve, and means for oscillating the arm and cutter wheel in vertical planes.

551,014. Electric Smelting Furnace. Joseph A. Vincent, Philadelphia, Pa. Combination of a horizontal channel way for supporting the material to be smelted, two electrodes of different polarity arranged transversely to the channel way, a positively acting feeding device arranged to force the material to be treated into the channel way at one end and between the electrodes, and a discharging pit arranged at the opposite end of the channel way and opening into it.

551,074. Feeding Appliance for Coal Dust. Ferdinand de Camp, Berlin, Germany. Patented in Germany, September 5th, 1893, No. 80,497; in France November 12th, 1894, No. 242,799; in Belgium November 12th, 1894, No. 112,691; in Switzerland November 12th, 1894, No. 9,564, and in England November 12th, 1894, No. 21,816. A perforated rotary distributing drum in combination with means of supplying coal-dust to its periphery and a ventilating device operating in its interior space to mix the dust with air and transfer it to a combustion chamber.

551,097. Pulverizer and Blower. William M. Russell, New York, N. Y. Combination of a casing, a shaft herein, and blades carried by the shaft and placed at angles laterally to the axis of the shaft, the angles of divergence of the blades gradually increasing from one end of the shaft toward the other, and other blades carried by the shaft and placed at reverse angles to the first mentioned blades.

551,098. Apparatus for Burning Fine Fuel. William M. Russell, New York, N. Y. Combination of a pulverizer and a pipe leading thereto from an air heating chamber, means to deliver fuel to the pulverizer to cause said fuel to be pulverized by the mechanism of said pulverizer, the mechanism being arranged to mix fuel with air while pulverizing it and to create a current of air to force the mixture from the pulverizer and means for delivering the mixture of hot air and pulverized fuel together to a combustion chamber.

551,127. Crusher and Pulverizer. Gustaf F. P. Lenz and William Paynter, Gawler, South Australia. Combination of end frames having brackets on their inner sizes, blocks resting on the brackets, wedges interposed between the blocks and end frames, crushing levers pivoted in the blocks and extending inwardly toward each other, and having crushing jaws at their inner ends, levers extending longitudinally of the crushing levers and below the same in the direction in which the levers are adjustable, and links connecting the levers and means for operating the same.

551,139. Rock or Coal Drill. Edward S. McKinlay, Denver, Colo. Combination of a rotary engine, rotating drill, drill feeding mechanism, vertical column, horizontal bar secured to the column, a friction ring-like clamp rigidly secured to the rotary engine and surrounding the horizontal bar, pivot provided with one or more cams for moving the ends of the clamp toward and from each other, and a lever secured to the pivot.

551,140. Mining Machine. Edward S. McKinlay, Denver, Colo. Combination of an upright frame, sliding cutter carrier on one side of the upright frame, vertically adjustable engine on the other side of the upright frame, the rotary piston of the engine and the power devices connecting the rod of the piston with the cutters and adapted to slide along the rod while being actuated thereby.

551,178. Amalgamator. Alfred Bowes and Fred E. Philbrick, San Francisco, Cal. Combination of a pan, a vertical driving shaft to which a pan is secured, means for rotating the shaft, dies fixed in the bottom of the pan, a stationary framework comprising a central portion upon each side of and parallel with the shaft, having upper and lower outwardly bent arms, means engaging the upper bent arms for holding the frame stationary, an annular ring secured to the lower bent arms, shoes secured to the ring, and resting upon the dies in the pan, and an open-bottomed hopper fixed to the periphery of the ring, for delivering the material between the shoes and dies.

551,220. Apparatus for Treating Nickel Ores or other Materials Containing Nickel with Carbon Monoxide. Ludwig Mond, London, England. Consists of a chamber adapted for reducing the material by reducing gases at an elevated temperature, a chamber adapted for treating the same with carbon monoxide, means for causing the ores to descend over superposed trays in each compartment, means for conveying the material discharged from the bottom of the reducing chamber to the top of the volatilizing chamber, means for supplying the lower end of the reducing chamber with reducing gases, means for supplying the lower end of the evaporating chamber with carbon monoxide, and means for discharging the gases from the upper ends of the chambers.

551,221. Apparatus for Treating Substances with Gases at Elevated Temperatures. Ludwig Mond, London, England. Consists of an upright chamber divided by trays or partitions into a number of superposed compartments, arranged to communicate with each other, a heating chamber in each compartment that is made to communicate with a combustion chamber for gaseous fuel arranged at the side of the apparatus so that each of the heating chambers communicates directly therewith, a chimney flue with which each heating chamber is also made to communicate, so that the hot combustion gases are made to pass from the combustion chamber through the heating chambers on their way to the chimney, means for supplying the upper end of the apparatus with the solid material to be treated, and for discharging it at the lower end, a stirring device for causing the material to descend from one compartment of the apparatus to the next below, and means for passing the gas with which the material is to be treated in an upward direction through the apparatus.

551,227. Drill. William J. Pearce, Terre Haute, Ind., assignor of one-half to John A. Harth, same place. Combination of a support feed screw, nuts movable into and out of engagement with the screw, sliding wedges controlling and moving the nuts, and a swinging slotted keeper controlling the wedges.

551,294. Process of Dehydrating Crude Asphalt. Clifford Richardson, Washington, D. C. Process consists in successively and alternately grinding or pulverizing the crude asphalt and drying it in order to reduce it from its natural state of emulsion to a dry powder.

551,304. Jaw Stone Crusher. Charles L. Carman, Chicago, Ill., assignor to the Gates Iron Works, same place. Combination of a movable and stationary crushing jaw, and an adjustable wedge, an adjustable wedge block upon the rear face of which is formed a toggle seat, all mounted and adjustably secured to the rear surface of the movable crushing jaw.

551,340. Mechanism for Making Tubes from Metallic Ingots. Ralph C. Stiefel, Ellwood, Pa. Combination of two parallel disks revolving in the same direction and overlapping each other, one of these disks being beveled at its outer edge, which beveled surface is opposed to a portion of the plane surface of the other disk, the outer diameter of this plane surface and the inner diameter of the beveled surface opposed to it being substantially the same, and the edges formed by both diameters intersecting the same transverse plane through the pass between the disks; the angles of the opposing surfaces converging to this plane, which is at the narrowest part of the pass, with the conical mandrel lying in the axis of the pass at its exit side.

PERSONAL.

Mr. Charles F. Mayer has tendered his resignation as president of the Baltimore & Ohio Railroad. His successor has not yet been appointed.

Señor Pedro J. Sosa, the well-known Colombian engineer, who has been for the past month in New York, returned this week to Panama.

Mr. W. A. Rogers, of the firm of Rogers, Brown & Co., iron brokers, and Mr. Julian Kennedy, of Pittsburg, Pa., recently visited Punxsutawney, Pa., to examine a site for a blast furnace.

Mr. Frank Huck, superintendent of labor at the Carrie furnaces of the Carrie Furnace Company, at Rankin, Pa., has resigned his position and has been succeeded by Mr. Henry Croft, of Swissvale, Pa.

Prof. Edmund B. Kirby, who has for several years held the chair of mining and metallurgy at the State School of Mines of Colorado, at Golden, has resigned in order to take up consulting practice in Denver.

Mr. Laurence W. Tatum, who has been general manager of the Silver Creek Mining Company, of Cooney, N. Mex., has resigned, and has accepted the position of consulting engineer for an Eastern syndicate.

OBITUARY.

Henry F. Brevoort, a wealthy coal dealer and prominent citizen of Yonkers, N. Y., died on December 19th, aged 57 years.

Henry Franke died suddenly in Brooklyn, N. Y. on December 19th, aged 55 years. He had been connected with the Phœnix Iron Works in South Brooklyn since he came to this country from Germany 28 years ago, and for the past 10 years was treasurer of the company.

William H. Gatzmer, well known in railroad and financial circles during the past 30 years, died at Philadelphia, Pa., on December 21st, aged 89 years. He entered the railroad service many years ago as an employee of the Camden & Amboy Railroad. He gradually worked his way from one position to another till he became president of the company, in 1867, a position which he held till 1872. He was also associated for a number of years with the United Canal and Railroad Companies of New Jersey.

SOCIETIES AND TECHNICAL SCHOOLS.

Western Foundrymen's Association.—The regular monthly meeting of the Western Foundrymen's Association was held in Chicago, Ill., on December 18th, the president, John M. Sweeny, in the chair. New by-laws were adopted.

Iowa Society of Civil Engineers.—The eighth annual meeting of the Iowa Society of Civil Engineers and Surveyors will be held in the office of the State Mine Inspector at Des Moines on January 15th, 1896. Practising engineers generally are invited to attend.

North of England Institute of Mining and Mechanical Engineers.—A general meeting of the Institute was held at Newcastle-upon-Tyne on December 14th. A number of recent contributions to the "Transactions" were discussed and the following papers were read: "A Short History of the Jameson Coke-oven," by Mr. John Jameson; "Safety Explosives," by Bergassessor Winkhaus; "Shot-firing in Fiery and Dusty Mines," by Bergrath H. Lohmann.

Engineering Association of the South.—The December meeting was held at Atlanta, Ga., on December 12th, being called to order by First Vice-President Kirkpatrick, Mr. H. D. Ruhm acting as secretary pro tem. The committees on papers and printing and on rooms and library reported. After a few remarks of welcome from Mr. Gude, the paper of the day was read by Mr. B.M.Hall, on "Gold Mining in Georgia." Mr. Grant Wilkins then gave an interesting talk on the engineering features of the Exposition.

The Institution of Mining and Metallurgy.—An ordinary meeting was held in London on December 18th. The following papers were read: "Mining and Metallurgy of Quicksilver in Mexico," by Mr. James Mactear; "Quicksilver Mining in the district of Guadalcazar, State of San Luis Potosi, Mexico," by Mr. Henry F. Collins; "Notes on the Treatment of Tailings by the Cyanide Process at the Standard Consolidated Mines, Bodie, California," by Mr. Thos. H. Leggett; "Notes on Deep Shaft Sinking in the Lake Superior Copper Mining District," by Mr. Walter McDermott.

Engineers' Club of St. Louis.—The annual dinner was given on December 18, with 45 members and six visitors present. After dinner President Russell called the club to order. The secretary read the report of the 203d meeting of the Executive Committee, giving the result of the letter ballot for officers for 1896 as follows: For president, J. A. Ockerson; vice-president, Edward Flad; secretary, William H. Bryan; treasurer, Thomas B. Mcmath; director, M. L. Holman; librarian, W. Layman; members of Board of Managers of the Association of Engineering Societies, J. B. Johnson and W. E. Barns. Retiring President Russell then resigned the chair in favor of the incoming president, Mr. J. A. Ockerson, who called on Mr. Russell for an address, which the latter then delivered, on "The Work of Engineers' Clubs." Other addresses were afterward made as follows: "Engineers' Clubs, Their best fields of usefulness," Robert Moore; "The Engineer at Home and Abroad," Julius Pitzman; "The Engineer of the Future," Richard McCulloch; "The Association of Engineering Societies," J. B. Johnson; "The Engineers' Club of St. Louis," C. M. Woodward.

Western Pennsylvania Mining Institute.—A two days' session was held in the court house at Pittsburg, commencing Thursday, December 26th. The programme for the two days was as follows: Annual address, President Thomas K. Adams, mine inspector: "How should mine stoppings be constructed, rigid or movable and of what material, to give the greatest safety in case of an explosion of fire-damp?" subject for general debate, leader Bernard Callaghan, mine inspector; the final report of committee on fan tests; paper, "endless line haulage," secretary, William Seddony paper, "notes from an engineer's experience," Prof. M. C. Ihlseng, State College; that the prevailing systems of mining the Pittsburg coal seam are not the most beneficial to the mine operators nor miners and should be changed, subject for general debate, leader James Blick, mine inspector; paper, "Electricity as applied to coal mining," L. L. Brande, electrician; paper, "The causes of explosions in mines and their prevention," Thomas Hall, van meter; "The natural advantages, relative to location of mine and condition of coal seam, being favorable and financial failure in the mining company's business should follow, what would likely be the causes leading thereto, and what means would you suggest for a company to employ to insure success?" subject for general debate, leader Thomas B. DeArmitt, mine superintendent; "If the number of fatal and non-fatal accidents, resulting from falls, mine wagons and miscellaneous causes, can be reduced, how?" subject for general debate, leader, Daniel Boden, mine superintendent; "What means should be adopted to increase the efficiency or usefulness of this institute?" subject for general debate, leader, Augustus Stinner, of Wilkinsburg.

Western Society of Engineers.—The committee, having in charge the publications of the Society is desirous of creating "topical discussions," of various engineering subjects, the intention being that these discussions will be asked for periodically. With this end in view Hydraulic Cement has been selected as the first subject. The committee has addressed letters to members and engineers, requesting them to submit information or a discussion as briefly or fully as they may desire. The following queries are submitted in the hope that they will elicit a full discussion and valuable information: 1. What are the relative qualities of the several Portland and natural cements at present in general use? 2. To what extent is the testing of cements useful in connection with various classes of work? 3. What nature of testing is suitable? 4. What are the essential points which should be covered in specifications as to testing cements? 5. What is the influence of the amount of water used in forming pastes and morter? 6. How are the several cement mortars effected by cold, both in laboratory and in practical work? 7. How are aortars effected by tempering? 8. What should specifications require as to mortar and mortar mixing? 9. How are cement mortars effected by different qualities of sand? 10. To what extent can cement mortar plasters be relied upon to adhere to cement mortar concretes, especially when Portland cement is used for plaster, and natural cement for concrete? 11. Discuss any other features as to use and quality of hydraulic or natural cements. Contributors are requested to forward their discussion at once. The board of direction will be requeseed to arrange for a general discussion of this subject at a meeting of the society after the publication of such written discussions as may be received. This action is in line with a desire to promote and encourage discussion. It is believed this will greatly increase the usefulness of the society and give additional interest to its publications. The printing of matter in advance, will enable those who wish to take part in the discussion at the meeting, to carefully study the subject beforehand.

INDUSTRIAL NOTES.

The furnace of the Copake Iron Works, at Copake, N. Y., is being repaired.

The Union Iron & Steel Company, Youngstown, O., has started one of its mills on cotton ties.

The 14 in. train at the steam mill of the Burden Iron Company, Troy, N. Y., has been shut down for alterations.

The Colorado Fuel and Iron Company, Pueblo, Colo., has built at its works a merchant iron warehouse 80×160 ft.

The Pekor Iron Works, of Columbus, Ga., has been chartered, with a capital of $25,000, by Charles F. Parker and others.

The Delaware Iron Works, at New Castle, Del., has received an order for 600 iron telegraph poles to be used at Cairo, Egypt.

The Carpenter Steel Company, Reading, Pa., has received an order for over $600,000 worth of projectiles for the Government.

The Franklin Steel Casting Company, of Franklin, Pa., has fired up its large steel casting plant, which will be running full in every department January 1.

The Union Steel Company has completed its Bessemer plant at Alexandria, Ind. The company will make special steel billets and tin-plate bars as well as other steel products.

The Stirling Company, of Chicago, Ill., has recently received an order from the Ætna-Standard Iron and Steel Company, Bridgeport, O., for 1,000 H. P. of Stirling boilers.

Reported plans for consolidation of Mahoning Valley Iron Company, Youngstown, and Falcon Iron and Nail Company, of Niles, O., are said by officers to be entirely unauthorized.

A company is being formed to operate the malleable iron foundry of the Muskegon Machine and Foundry Company, at Muskegon, Mich. Arrangements are being made to get the works in operation before spring.

The Mahoning Valley Iron Company, of Youngstown, O., advises us that it is adding a new Massick's & Crooke stove, 75×18 ft. to its Hannah furnace. The company has recently installed a new Weimer engine.

The American Fire Brick and Clay Company, Mineral Point, O., is now shipping five carloads of brick and clay daily. Among shipments made in one day last week were cars for Hudson, N. Y., and New Brunswick, N. J.

The Elmira Iron and Steel Rolling Mill Company, of Elmira, N. Y., advises us that it is now erecting two 20-ton basic open-hearth steel furnaces, which it expects to have completed and in operation early in the coming year.

Jones & Laughlins, Limited, of the American Iron and Steel Works, at Pittsburg, Pa., will make some additions to their plant in a short time. This will include an extension of the present machine shop and perhaps the erection of a new blooming mill.

The Merralls hydraulic quartz mill, of San Francisco, Cal., made a run on 10 tons of ore from the Gold Finch mine, of Calaveras County, with excellent results. Great interest is being taken in this mill. A descriptive circular will be mailed on application.

The A. Leschen & Sons Rope Company are informed by N. B. Trellue & Company that they have been using the "Hercules" rope and will use no other, at least their pull boatmen will not have any other; purchased through Woodward, Wight & Co., of New Orleans.

The Maryland Steel Company, of Sparrow's Point, Md., which has recently taken up bridge and structural work, has received the contract for the steel roof for the sewage pumping station at Providence, R. I., and for steel work for the ferry house at the foot of Barclay street, New York City.

The Pittsburg Foundry & Machine Company, limited, has just completed the erection of an iron-clad boiler shop 48 × 100 ft., two stories. The plant now has a large number of orders for Siemens valves, and also considerable work for the new Duquesne furnaces of the Carnegie Steel Company.

The Hendrie & Bolthoff Manufacturing Company, of Denver, Colo., has opened an office in the Masonic Building at Cripple Creek, Colo., with Mr. Walter M. Morris, one of their old employees, in charge. Mr. Morris has placed a large amount of mining machinery for his house throughout the district.

The receiverships of Cofrode & Saylor, incorporated, and the Reading Rolling Mill Company, lessee, Reading, Pa., were practically terminated by a decree made in the courts at Philadelphia last week, by which the receivers were authorized to turn the property over to the respective corporations.

The cold-steel rolling, steel wire mill, and bicycle departments of the West Bergen Steel Works, Jersey City, N. J., were destroyed by fire on December 21st. The loss is estimated at $100,000 on machinery and $10,000 on buildings. The works were run by Spalding, Jennings & Co., who carry insurances of $55,000.

The Edward P. Allis Company, of Milwaukee, Wis., has received from the Carnegie Steel Company, Limited, an order for four pairs of compound blowing engines. This makes a total of 11 pairs of these compound engines ordered from the Allis company by the Carnegie Steel Company, in the past five months.

The organization of the Anniston Iron and Steel Company, at Anniston, Ala., has been affected, the officers being as follows: President J. K. Dimmick; vice-president and general manager, H. B. Cooper, secretary and treasurer, John S. Mooring. The plant will be put in shape and work commenced as soon as possible.

Articles of incorporation were filed at Trenton, N. J., last week by the Walker Company, of Cleveland, O. This company will manufac-

ure electrical machinery, and is capitalized at $2,000,000. The incorporators are John Ludwig, of Brooklyn, and Charles N. King and Martin W. Dixon, of Jersey City.

J. H. Hillman & Co., Pittsburg, have recently sold the entire plant of the Cold Rolled Steel Company, at New Kensington, Pa., to the B. H. Woodsum Company, of South Braintree, Mass., who will put the works in operation. Hillman & Co. have also sold to the B. H. Woodsum Company a large tract of land in New Kensington, Pa., on which to erect a large tack factory. Work will begin at once.

The Southwark Foundry & Machine Company, of Philadelphia, has shipped an immense 180,000-lb. flywheel, 28 feet in diameter, to the Joliet (Ill.) Steel Company. It will require a 30-inch shaft, and is over four feet across the face. It was transported at the rate of about eight miles an hour on two special cars belonging to the Baldwin Locomotive Works.

The Connellsville Sheet Iron and Tin Plate Company, Connellsville, Pa., has been incorporated by George J. Humbert, George W. Humbert, Samuel B. Humbert, John Phillips, Ezra Frick, George W. Watts, A. M. Kings, Jr., and P. S. Newmyer. Work will begin soon on the company's tin plate plant at South Connellsville. Orders have been placed for much of the equipment.

The Reading Iron Company's plant is very busy at present. It is shipping 90 carloads of pipe alone weekly. J. H. Sternbergh & Son have also posted notices that the forging, threading and machine shop employees will work until 9 o'clock on Monday, Tuesday, Wednesday and Friday nights. Some of the departments have been working overtime the past four weeks. The rolling mill is on double turn.

The Troy (N. Y.) Iron and Steel Company is putting in a large electric plant. The engines are furnished by the Ball Engine Company, Erie, Pa., and the dynamos by the Westinghouse Electric & Manufacturing Company, and consist of three 115 H. P. Ball tandem compound engines, direct connected to Westinghouse dynamos, and one 165-H. P. Ball tandem compound engine, belted to a Westinghouse dynamo.

The Garry Iron and Steel Roofing Company, of Cleveland, with a capital stock of $250,000, was incorporated last week at Columbus, O., by Benjamin H. Powers, George E. Needham, Eugene R. Ahlfeld, Eubert C. Powers and C. B. Lockwood. The Osborn Building Company, of Cleveland, with a capital stock of $100,000, was also incorporated by H. W. Osborn, H. W. King, S. H. Tolles, Virgil P. Kline, and S. P. Baldwin.

The Niagara Falls Power Company invites proposals for the extension of its wheel pit to a size sufficient to accomodate seven more turbines, each of 5,000 H.P. capacity. When the turbines are placed, the company will have 50,000 H.P. or half the capacity of the big tunnel. The present users of the electric power generated by the mammoth dynamos are the Pittsburg Reduction Company, the Carborundum Company and the Buffalo & Niagara Electric Railroad.

The Midvale Steel Company has been furnishing a large number of cast steel wheel centers for locomotive drivers of late, both to locomotive builders and to railroads, and the company believes that the day is not far distant when such wheel centers will be universally used. A short time ago they supplied steel centers for eleven locomotives for the Pennsylvania Railroad, built at Altoona. They were 72 inches in diameter, and weighed on the average about 2,200 lbs. in the rough. It is estimated that the saving was over one ton in weight for each engine by using cast steel instead of cast iron.

The Niles (O.) Mine and Mill Supply Company recently organized with a capital stock of $20,000, has begun the erection of a plant which, when completed, will give employment to about 40 men, mostly skilled workmen. The new concern will manufacture all kinds of mine supplies, such as mine cars, wheels and axles, coal screens, chutes, weigh boxes, incline drums, and conduct a general machine shop for rolling-mill work. The officers are: W. W. Rosensteel, president; J. F. Pearce, vice-president; H. J. Robbins, secretary; G. B. Robbins, treasurer, and R. J. Rosensteel, superintendent.

The New York Carbide and Acetyene Company, to manufacture and sell gas-producing materials and acetylene gas and to distribute and deal in gas apparatus in Millbrook, Dutchess County, has filed articles of incorporation at Albany N. Y. The capital is $7,000,000, divided into 70,000 shares, and the company begins business with its full capital. The directors are E. C. Benedict, Anthony N. Brady, Edwin N. Dickerson, J. Bertschmann, Charles F. Dietrich, Walton Ferguson, John Fox, R. Somers Hayes, Erasmus J. Jersnanowski, Frederic P. Olcott, Arthur B. Preal, John Sloane and Samuel Thorne, of New York City. Julius J. Suckert, of New York City, subscribes for 69,998 shares of the capital stock of the company.

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GENERAL MINING NEWS.

Speaker Reed has appointed the following representatives to the Committee on Mines and Mining: Republicans (10)—Daniel D. Aitken (Mich.), Robert G. Cousins (Iowa), C. O. Hartman (Mont.), John C. Leisenring (Penn.). T. W. Mondell (Wyo., Rosseau O. Crump (Mich.), Joseph V. Graff (Ill.), Franklin M. Eddy (Minn.), Alexander M. Hardy (Ind.), and Frank J. Cannon (Utah). Democrats (4)—Farish C. Tate (Ga.), J. W. Cockrell (Tex.), Robert Neill (Ark.), and Joseph M. Kendall (Ky.)

ALASKA.

Alaska Mexican Gold Mining Company.—This company reports the clean-up for the month of November, as follows; Period since last return, 30 days: bullion shipment, $19,945; ore milled, 6,898 tons; sulphurets treated, 128 tons. Of bullion there came from sulphurets, $6,317. The working expenses for period were $11,911, leaving a balance of $8,034 as profit for the month.

Alaska Treadwell Gold Mining Company.—This company reports the clean-up for the month of October, as follows: Period since last clean-up, 31 days; bullion shipment, $62.363; ore milled, 23,712 tons: sulphurets treated, 400 tons. Of bullion there came from sulphurets $25,157. The gross expenses for period were $23,640, leaving a balance of $35,723 as profit for the month.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Volcano Gold Gravel Company.—This company owns the Peck claim in Volcano Basin. The 1,000-ft. flume is practically completed and work will soon commence on the large accumulations of tailings left from the early workings.

Butte County.

(From Our Special Correspondent.)

Shenandoah.—This mine is on the east branch of the Feather River, near Spanish Ranch. The tunnel run in from the mill has cut a 14-ft. vein of rich ore, the sulphurets running over $1,000 per ton.

Calaveras County.

(From Our Special Correspondent.)

Pure Quill.—At this mine, at Smith Flat, a rich strike is reported in the north drift at the 100-ft. level. The vein is 5 ft. wide and is composed of ribbon quartz which is rich in free gold. About $10,000 has already been taken out. The mine is owned and operated by the Godbe Company.

Tulloch.—This mine is 2½ miles southeast of Angels. The 10-stamp mill has started up, and as development work progresses the working force, now 35 men, will be increased. The company also controls other claims which it will develop.

El Dorado County.

(From Our Special Correspondent.)

Hager.—This old mine, 10 miles south of Placerville, has been bonded by J. E. Spencer, of San Francisco, who will pump out the mine and commence development work at once. A pumping and hoisting plant has been erected. Mr. Spencer has also bonded 800 ft. within the town site of Placerville and has commenced work on the claim. There are two tunnels on this property about 200 ft. in length and a shaft 100 ft. deep. Some rich specimens have been taken from this mine.

Inyo County.

(From Our Special Correspondent.)

Inyo Mining Company.—The Casey mine, owned by this company, has been prospected to a depth of 450 ft. The new hoisting plant is in operation and the 5-stamp mill is running regularly. It is the intention to work the tailings by the cyanide process.

Madera County.

(From Our Special Correspondent.)

New Citizen.—This mine, in Deadwood Gulch, Potter Ridge District, has closed down on account of water. A pumping plant has been ordered, and as soon as the mine is pumped dry the work will be pushed and a 10-stamp erected.

Nevada County.

(From Our Special Correspondent.)

Bowman.—This old mine, near Bowman's Lake, is to be reopened by an English syndicate, who have purchased the property. The vein is wide, and is rich in sulphurets.

Providence.—The new pipe line to this mine has been completed. This will give the company a reserve supply to be used in case an accident should occur at the South Yuba Company's reservoir.

Riverside County.

(From Our Special Correspondent.)

Golden Charriot.—This mine, in the Pinacate District, near Perris, has been pushing development work. At a depth of 300 ft., while running a drift from the shaft, a 5-ft. vein of good ore was struck.

San Diego County.

(From Our Special Correspondent.)

Fraction.—This mine, in the Julian District, half a mile northwest of Banner, has been sold to the Venturia Mining and Milling Company. This gives the company 2,000 ft. on Cable Tract and joins its property to the Cincinnati Belle.

Shasta County.

(From Our Special Correspondent.)

Iron Mountain.—The main tunnel is in the ore body over 800 ft., and at this point assays show 30% copper, $11 gold, 30 oz. silver and quite a percentage of iron.

COLORADO.

El Paso County—Cripple Creek District.

(From Our Special Correspondent.)

Anchor.—These properties seem steadily to improve. The Airheart lease shaft has been sunk below 300 ft., and the vein widens. The High-lease is yielding more ore than ever before, the vein being stoped at the 20-ft. level for 13 ft. wide, average assays giving $37 per ton for the 13 ft. The shaft is being sunk below the 275-ft. level with 7 men. Two additional steam hoists have been erected on this claim within the past two weeks. The leases expire on May 1 next.

Blue Bird.—Another steam hoist has recently been erected on this claim, on what is known as the Bartlett lease. The shaft has been sunk 80 ft. The last car lot shipment, close to 20 tons, yielded 8 oz. to the ton.

Christmas.—This mine, on Bull Hill, seems to improve with depth. The shaft is now down 175 ft., and rich ore showing both free gold and telluride of gold is often met with. The pay streak is about 12 in. wide, although the vein is 8 ft. wide, only 4 ft. of which is being carried.

Elkton.—The sinking of the sink is carried on with all speed, by 12 men. The amount of water in the shaft is about two buckets per hour, all the water, 200 gals. per minute, being pumped from the third level which the pump handles easily. The level is being driven north from the Katherine shaft at the 415-ft. level, and will soon be on the Walter ground.

Ironclad.—This property, on Ironclad Hill, made an important strike the past week. The shaft had been sunk 150 ft., and drifting commenced south, when a rich ore shoot was encountered which assays about $100 per ton. Hitherto several shipments have been made by the lessees, but thus far there was no profit to them. From present appearances, it looks as if the future would be a success. A steam hoist will soon be erected.

Keystone.—The shaft is being sunk below the 150-ft. level. From this property within the past four months, $8,000 worth of ore have been sold.

King of Diamonds.—This claim, about 300 yds. west of the Lincoln, is now being worked under lease. It has produced quite a little ore above the 50-ft. level. Assays of mud have yielded from $150 to $175 per ton, and the pay-streak $40; but during the past two years little work has been done and the vein had partially lost its values. The formation, both here and in the Lincoln, is granite.

Lafayette.—This fractional claim, between the Rubie and the Lucky Guss, on Bull Hill, has recently made its initial shipment of two cars to the smelter. The shaft is now down 225 ft. and the pay streak, 18 in. wide, averages about 8 oz.

Lincoln.—This mine, 3 miles north of Cripple Creek and about half a mile west of Gillette, made its initial carload shipment this week. The shaft has been sunk 100 ft. by windlass, the pay-streak being about 2 ft. wide. An average assay across the pay-streak gives $113 per ton. This claim in 1893 was mysteriously worked, the ore being taken to Denver 120 miles by wagon. The owners were afraid of being adversed in securing patents.

Lucky Guss.—This Bull Hill property is being vigorously worked by lessees whose terms expire in February next. The lessees have been doing development work of late, but now their attention is devoted solely to extracting the ore, which is being hoisted at the rate of 40 tons a day. The shaft has been sunk 330 ft. The Cripple Creek syndicate, Limited, a London corporation, recently paid $5,000 for an option on same, the bond expiring at the same time as the lease, Mr. Walton being the engineer for the syndicate and Mr. Hascall of Colorado Springs, the financial agent.

Portland.—The shaft has reached the 500-ft. level. The sinking of this shaft has been one of the quickest pieces of work performed in the district. The shaft was commenced in May and work carried on by two men until June 15th, when a full force was employed, and before December 15th 500 ft. was sunk and securely timbered, 10 × 10 timbers being used. It is a 3-compartment shaft. The machinery will be on the ground early next month. The plant will be the best in the camp; the drum is 14 ft. in diameter, the wire rope is flat and weighs 7,000 lbs. The mine throughout never looked as well as at present.

Rubie.—This mine steadily improves, the output of smelting ore being about 3 cars a week. There are 45 men employed.

Victor.—The Bull Hill property is being worked vigorously and employs 100 men. Considerable low

grade ore is being treated at the local mills. The new shaft has been sunk vertically 400 ft. This property was recently examined by a California expert for a London firm.

Lake County—Leadville.

(From Our Special Correspondent.)

Adelaide.—The ore chute opened up better than anticipated and the outlook is very bright. About 25 tons daily of sulphide and silicious ores are being shipped. Work is being conducted at the 400-ft. level.

Kisaulee Mining Company.—This company is conducting operations on the Silver Standard, H. M. Teller, Free Coinage, Walcott and Detroit. The properties are temporarily shut down, but active operations will be resumed in the near future.

Northern Mining Company.—The large plant of machinery is now successfully handling the heavy volume of water. Shipments have commenced from the main ore body and run about 25 tons daily.

Ore Output.—The tonnage of the camp is increasing daily and will be about 1,500 tons daily if the present average continues. Mining men are very busy at present preparing their reports for the year. Mr. John Campion, the head of the Little Johnny group (Ibex Mining Company), expressed himself as follows: "Leadville's output is increasing every day, and during 1896 Leadville will be the foremost producer of gold, silver and lead in the world. Our figures are based on smelter returns, and Leadville is substantial. We will not have a boom, but the new year will see some wonderful developments here."

Selma Gold Mining Company.—It is expected that instructions will be received this week to resume operations on the Selma. The shaft is down 135 ft., and the property is well located in Iowa Gulch.

Ouray County.

(From Our Special Correspondent.)

Bachelor.—This property now employs 50 men, and a summary for the year shows an average net profit of $35,000 per month to its three owners.

Cascade.—A strike of rich gold ore has been made on this property and six carloads have already been mined and shipped. The vein, a true fissure, is large and development is proceeding through four different shafts.

Ceutar.—The operators of this company have struck it rich and are shipping high grade gold ore regularly to the Denver smelters.

Fisherman.—A big strike is reported from this property, which is situated within the city limits. The ore runs high in silver, and shipments will begin next week.

Genesee-Vanderbilt.—This mine is outputting an average of 90 cars per month of high-grade silver ore and is working 65 men.

Gold King.—Some rich gold ore has just been encountered at this property, at a point only a few feet from the surface. A crosscut tunnel is being run 100 ft. down the hill to cut the vein.

Guston.—This mine is shipping from 70 to 100 cars monthly. The working force consists of 150 employees.

Khedive.—Hurlburt & Bunce will run this tunnel 1,700 ft. in order to tap the American Nettie where that tunnel left off.

Shipments of ore from Ouray for 1895 amount to 2,033 cars up to date.

GEORGIA.

Dade County.

(From Our Special Correspondent.)

Georgia Mining, Manufacturing and Investment Company.—In this county, which is located in the extreme northwestern corner of the State, are located the coal and iron mines, and the blast furnace belonging to this company, whose headquarters are in Atlanta. The company also owns large interests in brown hematite ore mines in Bartow County, and another blast furnace in Chattanooga, Tenn. This is the largest corporation of its character in the State of Georgia, and was managed by ex-Governor Joe Brown, who was the incorporator, after whose death, about 18 months ago, the property was placed in the hands of a receiver. Julius Brown brother of the deceased, was appointed such receiver.

The business of the company, since this appointment, has not been materially affected; the coal mines and furnaces, as well as the brown iron ore mines in Bartow County, have been kept in active operation. Recently efforts have been made for a re-organization of the company, and during the past ten days a committee, consisting of D. B. Hamilton, Frank Weld, Willis E. Ragan, C. L. Rogers, Burton Smith and C. L. Anderson, has been co operating with a large number of the creditors of the company for the purpose of consummating such a reorganization. The following is the plan outlined by these committees, and which will probably be adopted in the near future, as over 80% of the creditors have concurred. The plan will be submitted to the remaining creditors for their concurrence, and while, of course, it is probable that the terms will be modified and changed considerably, there is no doubt but that the reorganization will be effected in the near future. The following is an abstract of the report: "We recommend to those interested the following skeleton plan, subject to such future modifications as may be necessary: 1. All of the existing bonds and other obligations of the Georgia Mining and Manufacturing Company, and of the divisional companies controlled by it, to be cancelled, and all of the property, both real and personal, of each and all the companies, to be absolutely conveyed to the new corporation. 2. One hundred and fifty thousand dollars of 5% 10-year bonds to be issued and sold at the best market price, or taken by parties at interest, should they so desire, secured by a first mortgage on all the property of the company. The proceeds from these bonds to be used in paying the receiver's certificates, expenses of receivership, such liens as in law have priority over the bonds now existing and other proper debts of the receiver, the remainder to be used as a working capital. 3. Three hundred and fifty thousand dollars of 15-year bonds, which shall bear interest for the first five years at 3% and thereafter at 5%, to be issued, secured by a second mortgage upon all the property of the company, these bonds to be divided pro rata among the present bondholders; and so much of the present holdings of bonds as are not fully paid at par by this new issue of bonds, shall be cancelled by the delivery to said bondholders of an equivalent in the capital stock of the corporation at the rate of two dollars for one. 4. The unsecured creditors to receive in satisfaction of their indebtedness stock in the new corporation, also at the rate of two dollars for one. The stock so issued to the bondholders and unsecured creditors to comprise the entire capital stock of the corporation.

The Rising Fawn Furnace, which is owned and operated by this company, is the only blast furnace, with the exception of that at Rome, which has been actively operated in Georgia during the past year. The company manufactures most of the coal mined in its Dade County mines into coke, to furnish the fuel for their furnaces. During the past year this company has only mined a very limited quantity of the red fossiliferous ore, which occurs on their property in the vicinity of Rising Fawn, but has been mining quite extensively at the brown hematite ore Mines in Bartow County. The company employs a large percentage of the convicts sentenced in the State of Georgia. These are employed in the coal and iron ore mines and limestone quarries.

IDAHO.

Owyhee County.

De Lamar Mining Company, Limited.—The following is the report for November: Crushed during the month, 3,236 tons; bullion produced in the mill, $57,495; estimated value of ore shipped to smelters, $15,000; miscellaneous revenue, $1,140; total product, $73,635; total expenses, $38,945; profit for the month of November, $34,690. Capt. Plummer adds: "The tonnage was reduced during November owing to repairs to batteries; we are now crushing satisfactorily.

INDIANA.

Gibson County.

Maule Coal Company.—A 6-ft. vein of coal was struck near Princeton last week at a depth of 440 ft., the result of efforts made by this company. It owns 1,300 acres of lane contiguous to the city, and will proceed immediately to develop the find. There is some excitement over the discovery.

KENTUCKY.

Whitley County.

Bird Eye Coal Company.—At Halsey, 7 miles from Jellico, this company has been reorganized and work will be resumed within 30 days. The mines at that place have not been running for several months, as the business there was placed in the hands of a receiver. When work starts 200 men will find employment.

MASSACHUSETTS.

Hampden County.

A new vein of corundum has been discovered near Chester by Dr. H. S. Lucas, who made the original discovery of this mineral in Massachusetts 30 years ago. The new find is probably an extension of the old vein and is only 1¼ miles away from the workings on the latter.

MICHIGAN.

Iron.—Menominee Range.

Chapin Mining Company.—A special meeting of the stockholders will be held in the office of the company, in Cleveland, O., on Thursday, January 9th, to consider an increase of the capital stock of the company from $500,000 to $1,000,000. This increase is contingent on the completion of negotiations for the acquisition of the Hamilton and Ludington mines.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

JOPLIN, Dec. 23.

The district sales were less than half those of last week, work in this entire section being greatly retarded by the three days' rain and snow. The top price paid for zinc ore was $22.50 per ton, with an average of a little less than $21 per ton. The sales of zinc ore were greater than the shipment and the roads were so bad that the ore could not be hauled. Lead ore sold at $17.50 per 1,000 lbs., with 50c. added for hauling. The following was the shipment and sales for the district, except Aurora, which did not report: Joplin, zinc, 540,490 lbs.; lead, 155,290 lbs.; value, $8,489; Webb City, zinc, 496,880 lbs.; lead, 24,730 lbs.; value, $5,652; Carterville, zinc, 575,730 lbs.; lead, 83,360 lbs.; value, $7,517; Galena, Kan., zinc, 820,000 lbs.; lead, 350,000 lbs.; value, $13,837; Stott City, zinc, 120,000 lbs.; value, $1,364; Springfield, zinc, 44,000 lbs.; value, $462; Zincite, zinc, $18,480 lbs.; value, $189; Spring City, zinc, 24,110 lbs.; lead, 580 lbs.; value, $266; Oronogo, lead, 1,360 lbs.; value, $22.80; total district turn-in, zinc, 2,621,190 lbs.; lead, 595,850 lbs.; value, $37,858.80.

The Victor Mining Company.—This company, on its lease of the Connor land, near Webb City, is rebuilding its concentrating plant and putting in a pump again. Its plant was burned down about three months ago, and was one of the largest plants in the district. At one time this lease and plant sold for $100,000.

There has been more prospecting and sales of mining land this fall in this district than for two years, and a large amount of Eastern capital has been invested in the mines.

Western Zinc Company.—The property of this company was sold last week at the court house by Judge Galen Spencer as special master, acting under orders from the United States court. The successful bid was $200,000, made by Mr. James Cambell, of St. Louis, Mo. The property consists of the old Oswego tract of over 700 acres, all lying within the city limits of Joplin; together with the different plants, and machinery located thereon. The property has been in the hands of a receiver for some time, but to satisfy some of the members of the company the court ordered it sold. The tract has been one of the biggest producers, in the districts. It is reported that the pumps will be started again and the mines re-opened soon.

MONTANA.

(From Our Special Correspondent.)

There has been a considerable number of inquiries for gold properties in Montana, during the fall, and it is probable that the result will be that some good mines will change hands. It is stated that Senator Carter has sold his interest in the Hope at Basin, but that is hardly probable unless the mine has been sold outright. It is believed that negotiations are pending for the sale of this mine, and that it will soon change hands. It is also said that the Glass Brothers have sold part of their interest in the Katie, an adjoining property to the Hope, whose concentrator and hoist was burned last summer. Both these properties are desirable. It is also reported that some French capitalists have hadengineers examining the Bald Butte properties in Deer Lodge County with a view to purchasing them. The latter are among the best gold properties in the State.

Fergus County.

(From Our Special Correspondent.)

Gilt Edge.—Mr. H. S. Sherard is again in charge of this mine, in the Judith Mountains. He brings the good news that the new company has been reorganized with sufficient stock capital to work the mine. This is a gold property, and the metal is saved by a cyanide process.

Granite County.

Oro y Plata Mining Company.—This company held its annual meeting for the election of officers at the company's office in Phillipsburg, last week, and the following officers were elected to serve for the ensuing year: President, M. E. H. Gannon; vice-president, Dominick Byrne; treasurer, Wm. Neu; secretary, John Neu.

Jefferson County.

Elkhorn Mining Company, Limited.—The following is the report for the month of November: Mill worked 28 days and crushed 1,944 tons; bullion produced in the mill, $27,400; 37 tons of smelting ore sold, $4,726; total product, $32,126; total expenses, $20,100; estimated profit for the month, $12,026.

(From Our Special Correspondent.)

Buckeye.—Messrs. Deitch, Scott and Diver have a lease on the Buckeye, in the northwestern part of the county near to Rimini, and expect to ship ore during the winter. They will have a hard time to keep the roads open.

Elkhorn Mining Company, Limited.—It is doubtful if the Elkhorn mine closes on January 1st, as has been given out. There are rumors that other ore bodies have been encountered that will furnish ore for some time. The mill is undergoing repairs.

Eva May.—Manager Simpson, of the Eva May, reports that the new concentrator is working well, the tailings only showing 20c. in gold and from 2 to 5 oz. in silver. This can hardly be called satisfactory. The concentrates are shipped to East Helena, where they are treated for "considerably less" than $8 a ton. The concentrates run from $20 to $30 a ton

Lump Gulch.—The approach of winter has not caused development work in Lump Gulch and vicinity to be abandoned. This year the work has been very satisfactory, as wherever ore has been found in the camp it has proven to be of the same rich character as that heretofore found in the district. It is stated that a two-thirds intrest in the Horseshoe has been sold to Miller & Merrill, the owners of the Liverpool, for $12,000. The Horseshoe is developed by a shaft 100 ft. deep and a tunnel of 250 ft. No extensive development has been done on the vein, but at the crosscut from the bottom of the shaft it shows ore 5 ft. wide of good grade. Developments on the Muskegon shows a body of ore a few inches in width for 260 ft. The shaft will be sunk 100 ft. deeper, when it is hoped the body of ore will be wider. The Nipsic, in

Strawberry Gulch, is looking well, bodies of galena, claimed to be 1 ft. in thickness, having been found on each wall. The value of the ore is not stated, but near the surface it was very rich. The Haldemac has got a whim and the shaft will be sunk 50 ft. deeper. This property has shipped some rich ore from near the surface and the owners expect to find more of the same kind when they have finished sinking. A vein of solid galena 4 in. thick has been found in the New Stake, which has much elated the owners. The Liverpool is still being worked with a reduced force of men, and it is said that no further exploration work will be done this winter. The Norma, which has been considered one of the promising mines of the camp, has a rich body of ore in sight.

The Lump Gulch district may be said to extend on either side of the Little Prickly Pear for several miles above and below Clancy station. The country rock is granite, but there are huge dikes of intrusive rocks, probably a variety of trachyte, transversing the granite east and west, which is also the strike of the veins. Lump and Gulch and Clancy Creeks rise at Red Mountain to the southwest and run in a northeasterly direction, emptying into the Little Prickly Pear within less than a mile of each other. Between these streams there is a high narrow ridge. At no place are the two streams much more than a mile apart. Strawberry gulch rises in the foot hills of the Elkhorn range, and runs nearly northwest, emptying into the Little Prickly Pear almost opposite Lump Gulch. In the hills along these streams the mines are mostly situated. The veins are generally small and dip to the south. The ores carry some lead, and nearly always zinc, there being present in some shipments as much as 20% of that metal. There is considerable gray copper found in the camp. The ore is base, but very rich in silver, seldom running less than 100 oz., and probably averaging more than 150 oz. But the bodies are small, especially near the surface. The number of veins that have been found, and the rich ores they contain, prove that the district will continue to produce silver in quantities that will pay. No large capitalists have yet invested in the camp, probably because they have not much faith in silver properties, as well as because of the small veins. Investors generally seek larger properties.

Pauper's Dream Mining Company.—It is said that this company is thinking of erecting another mill with 100 stamps. There is, no doubt, plenty of ore for such a mill, but the difficulty will be to get a sufficient quantity of water near the mine to operate such a large mill. This company owns the Mollie Stark and other claims on the porphyry dike in the extreme northwestern part of this county. The developments on this and adjoining properties proves that large quantities of low-grade ore exist there. There was a propos tion last year to build a narrow gauge railroad in that country connecting the principal mines with the branch of the Northern Pacific road at Rimini. If that road should be built the coming year it would no doubt enable the ore to be taken from the porphyry dike and brought to mills on the Missouri River, where there is an inexhaustible supply of water. It is believed that ore could be taken from the porphyry dike to the Missouri River for 50c. or 60c. a ton. The dike is about 8 miles from Rimini, and there is a roadbed grading from Helena to the Missouri River. The distance the ores would have to be hauled would be about 36 miles. The quantity of ore is very large and it can be easily mined and cheaply milled. It could be delivered on cars at probably 50c. a ton, and it is so free that it could be milled for 60c. It could probably be mined, hauled and reduced for $1.75 a ton. Its assay value is over $3.

It is probable that the finding of gold in the porphyry dike will cause prospectors to examine every intrusion of porphyry or similar rock in the range of mountains next summer. There are numerous intrusions of what our miners call "porphyry" all over the mountains. These intrusions are found in both the granite and slate, and they embrace all kinds of intrusive rocks. Forms of rhyolite, diorite and dolerite are most common. While veins are not always found where these intrusions occur, there is no vein of any prominence bearing large quantities of good ores found without some one or more dikes of intrusive rock being found near it. It is generally considered that these intrusive rocks have some connection with the mineralization of the veins. But so far these intrusions have been seldom examined for veins and more seldom have their rocks been prospected for gold or other minerals. But from this time it may be asserted that prospectors will neglect no kind of rock, especially where gold is found in the neighborhood.

The slag from the old dumps of the smelter at Wickes is being broken up and shipped to the East Helena smelter for retreatment.

An engine and several new cars have been added to the narrow gauge road at Corbin, and such improvements are being made in the No. 2 mill at that place that the output of the mill will be greatly increased.

Meagher County.

(From Our Special Correspondent.)

Duck Creek Mining Company.—It is said that this company has a claim on which is a vein of free milling ore that is 6 ft. wide, and assays from $40 to $45 a ton. The company is now considering an offer for the property.

Moulton Mining Company.—There has been uncovered a large body of ore in the Moulton mine at Barker, which runs 50% lead and 20 oz. of silver. The company are making arrangements to drive a tunnel so as to tap this ore body at a greater depth in the spring.

Nevada.—This mine, at Neihart, which is owned by Max Sklower, of White Sulphur Springs, and others, is yielding some rich ore, which so far has paid for all the development work on the mine. Mr. J. C. Wells, the superintendent, thinks that the Nevada will soon be a regular producer.

Silver Bow County.

(From Our Special Correspondent.)

Maud S.—Some excitement has been created in Butte by the discovery of rich gold ore in the Maud S., south of the city, in what is called Leslie's gulch. The strike was made while doing development work on the property. The ore body was found to be 15 in. wide and very rich in gold. The Maud S. is owned by a company and is bonded for $100,000. In the west Maud S it is claimed that there is a body of ore 30 in. wide running $20 to the ton. The Julian, owned by Tom Porter, in the same gulch, shipped several tons of high grade gold ore that is reported to have returned some $200 to the ton.

Morning Star.—The leasees on this silver property, whose shaft is near Galena and Montana streets, Butte, have made two shipments of ore that went 25 oz. in silver and $4 in gold.

Rarus.—The new hoisting works on this mine, belonging to the Montana Ore-Purchasing Company, are nearly completed.

Virginius.—Some three months ago David Bricker lessee of the Virginius mine, Butte, put in an electric hoist, operated by a motor of 50 H. P. Power is obtained from the street car company's plant. Such has been the success of this hoist that it is probable hereafter that the small mines, especially those operated by leasers, will be worked by electric hoists.

NEVADA.

Storey County—Comstock Lode.

Andes Mining Company.—At the annual meeting of this company, held last week in San Francisco, 81.395 shares were represented, and the following officers elected: President, Nat T. Messer, vice-president, E. L. Parker; directors, W. S. Lyle, W. Edwards and H. Zadig. John W. Twiggs was re-elected secretary and Joseph R. Ryan superintendent. The secretary's financial statement showed a balance on hand of $3,727.12.

Gould and Curry Mining Company.—At the annual meeting of the stockholders of this company, held last week in San Francisco 80,115 shares were represented, and the following gentlemen elected to serve as officers for the ensuing year: H. B. Havens, president; Chas. H. Fish, vice-president, and Thos. F. Fish, Thos. Anderson, H. Zadig, A. S. Wollberg and A. K. Durbrow, directors. A. K. Durbrow was re-elected secretary and Pat. Kervin superintendent. The secretary's financial statement showed an indebtedness of $761.66. A resolution authorizing the superintendent to dispose of the old machinery at the mouth of the Obiston shaft was adopted.

Kentuck Mining Company.—At the annual meeting of this company, held in San Francisco last week, 70,128 shares were represented, and the following officers elected: President, R. E. Kelly; vice president, H. Zadig; directors, S. Jacobs, W. H. H. Hart and Aug. Waterman. Aug. Waterman was re-elected secretary, and his financial statement showed a balance on hand of $4,304 94.

Ophir Mining Company.—At the annual meeting of the stockholders of this company, held in San Francisco last week, 66,788 shares were represented, and the following were elected to serve as officers for the ensuing year: President, Charles H. Fish; vice-president, Nat T. Messer; directors, George R. Wells, A. W. Havens, John W. Twiggs, H. Zadig and Charles Hirshfeld. E. B. Holmes was re-elected secretary and D. B. Lyman superintendent. The secretary's financial statement showed a credit of $11,722.37. The superintendent's report shows that they have on hand in the ore house 193 tons of ore, the average assay value of which, per sample taken from the cars when raised to the surface, is $29.49 per ton. On the 250-ft. level, which is worked through the central tunnel, he estimates that there is, stored in the drifts, 120 tons of ore, the average assay value of which, per samples taken from the cars in the mine, was $39.58 per ton. This makes a total tonnage on hand in the mine and in the ore house of 315 tons, averaging $33.35 per ton. Arrangements will soon be made to work this ore. As it is impregnated with some lead and other base materials, it is proposed to have it crushed and concentrated, and to ship the concentrators to some suitable reduction works for extraction of the gold and silver contained in them. Some three or four years ago, when they were extracting ore from the 1,465-ft. level, there were saved 439 tons of ore of low grade, and it was hoisted from the mine and stored on the waste dump separate from the waste rock. This ore assayed from $8 to $12 per ton, and was sold the past year for 50c per ton. The new work on the 1,000-ft. level is of great importance. Connection is to be made between the Ophir and Consolidated Virginia Shafts on that level preparatory to exploring a large block of ground in which there are good prospects.

NEW MEXICO.

Santa Fe County.

(From Our Special Correspondent.)

SAN PEDRO, N. Mex., Dec. 18, 1895.

Lincoln Lucky.—Mr. R. G. Clarke is back again as superintendent of the Lincoln Lucky. He has 10 men at work.

The Copper Company.—This company has 17 men at work.

Cuchillo & Goldsmith.—Thal & Bates have their mill completed, and will start on ore from these lodes in a few days.

San Pedro Gold Mining Company.—J. C. Giffaey was in town last week looking over this property, of which he is superintendent. He let three contracts, and says he expects to prosecute work diligently from this time on.

Golden.—The Woods dry washer is a perfect success, so say the owners. They made a trial run and claim the machine will put through nine tons an hour and save the gold.

Ortiz.—This old mine, on the Grant, two miles above Dolores, has been leased by St Louis parties. They sunk a shaft 180 ft. in the old workings and cleaned out some of the old drifts and are more than pleased with what they found. The old mine has been idle for 30 years and in those days anything under 2-oz ore would not be touched.

Lone Star Mine.—This is shipping to Pueblo about 200 tons a month. The Washington will resume operetions in a few days with Mr. J. Jenks, of Albuquerque, as superintendent.

PENNSYLVANIA.

Anthracite Coal.

The Catawissa "News Item" says that during the season just closed there was shipped from Nanticoke over the Pennsylvania canal 210,344 tons of coal, and from Shickshinny 1,632 tons of coal and culm. This is the lowest tonnage of any year. The lowest previous year being 1894, when 222,465 tons were shipped. The only salvation for the canal is the purchase of the tidewater line by the Pennsylvania Coal Company, or by parties with whom advantageous traffic arrangements can be made, so that the old canal market will again be open to the Nanticoke coal, otherwise a speedy abandonment may be looked for.

Bituminous Coal.

A press dispatch from Pittsburg says that all the coke companies posted notices on December 25th of an advance of from 10 to 15% for all grades of labor. The companies have been working in unison for the past two months. The new rate of wages will, it is said, be the highest ever paid in the region. Between 15,000 and 18,000 workers will be benefited by the advance.

UTAH.

Summit County.

Daly Mining Company.—The output of the Daly mine, at Park City, for 1895, as compiled from data furnished by the secretary of the company, is as follows: Bullion, 423,091 oz. silver; sulphides, 58,165 oz. silver; 59.57 oz. gold; ores, 10,286 oz. silver; 10.17 oz. gold; estimated shipment for December, 50,000 oz. silver; total, 541,452 oz. silver; 69.14 oz. gold.

Ontario Mining Company.—The output and value of bullion and ore sales of the Ontario mine and mill, at Park City, for the year 1895, the output for December and part of November being estimated, is as follows:

	Bullion.	Sales.	Total.
Net tons ore	27,400	851	28,251
Oz. silver	1,285,000	71,413.81	1,356,413.81
Oz. gold	950	73.18	1,023.18
Lbs. lead	.....	612,938	612,938
Sold for	$817,000.00	$46,764.53	$863,764.53

The improvements made by the company for the year 1895 were as follows: Electric light and power plant completed and in successful operation; cost, about $23,000. Pipe line, 9,000 ft. long, cost about $20,000, from Silver Islet Lake to convey water to mines and mills for steam and milling purposes.

WYOMING.

(From Our Special Correspondent.)

Cheyenne.—A large body of graphite, situated in Halleck canon on the boundary line between Laramie and Albany counties, is just now attracting a great deal of attention among mining men and capitalists. Considerable prospect work has been done and several good claims located the present season. Assays made in Denver and at the State University of Wyoming show a high percentage of graphite. The deposit extends some 5,000 ft. east and west, between well-defined walls of gneiss, and covers a large area and contains a large amount of graphite, the average from the surface, assaying from 40% to 50% pure carbon.

These properties are well located for convenient and economical working, both from the contour of the mountain containing the mineral and from its proximity to railroad connections. While little, if any, skilled labor has been done on the property, still enough has been developed to show that it has value and is of large extent. A tunnel has been driven into the mountain some 600 ft. below where the mineral crops out on the summit. At a distance of 100 ft. from the mouth of the tunnel the deposit is reached, the tunnel extends into the mineral 50 ft., at which point crosscuts have been run for a

distance of 45 ft., without reaching either wall. The deposit is compact and solid, showing a large amount of foliated graphite thoroughly developed. At the entrance of the tunnel, east and west, the graphite is exposed and requires only a stripping off at the surface to permit its extraction. This exposure extends 340 ft. east and 560 ft. west, and appears 1,250 ft. south for the same distance in each direction. In a report made on this property by Professor Linderman, of Denver, he states: "I classified the plumbago in three classes and had burned tests made, which resulted as follows: Plumbago No. 1, of high grade, foliated, burned tests, 93.5 and 95; No. 2, burned tests, 79 and 81; No. 3 burned tests, 54 and 58."

FOREIGN MINING NEWS.

NOVA SCOTIA.

(From Our Special Correspondent.)

Coal.—Now that the busy season has ended, an idea may be formed of the season's trade. The figures for the calendar year are not yet available, but from the shipping and other returns the sales are in round numbers 1,800,000 tons for 1895 as against 2,000,000 tons in 1894. This shortage of 10% is shared among all the districts. The returns show that as yet the completion of the railway from the Sydney coal-field to Louisburg has not increased the sales to points in the United States. There are no new points to report about the Sydney coal field. An engineer is examining coal properties on the west coast of Cape Breton on behalf of English capitalists. In the Pictou district the usual autumn dullness prevails. In the Cumberland district the mines continue to keep busy stocking the railways. The North Slope has resumed work at Springhill.

Gold.—In gold mining the opened properties are working steadily with good returns. Little has been done in the way of prospecting or development of new properties. During October and November returns from the Golden Lode Mount Uniacke show 224 oz. from 25 tons; from Brookfield 624 oz. from 814 tons; from Fifteen Mile Stream, 385 oz. from 580 tons. The low grade properties at Stormont continue to improve, and next season should show a large return.

The Rawdon mines, which were bought some time ago by an American company and the purchase repudiated on a claim of "salting," are now yielding well in local hands. The Nova Scotia mines property at Montagu, whose start was heralded some time ago with a great flourish of trumpets, was sold a few days ago for $5,000 to local men, who believe that there is still plenty of gold in the property, which has made rich, but intermittent, returns for many years.

Iron.—At the iron mines and furnaces work has been briskly resumed after several long spells of idleness. The returns show 30,000 tons of pig iron to the end of September.

Manganese.—The output of manganese from the Tenny Cape mines last season was about 100 tons. The blast furnaces at Londonderry and Terrona are running steadily, with ready sales.

Plaster.—The plaster exports for 1895 are a little under the average, amounting to about 125,000 tons, principally shipped from Windsor.

ONTARIO.

(From Our Special Correspondent.)

Bull.—These claims including J O 12, 13 and 14, and 69 P has lately changed hands, and will at once be placed under development. Hitherto, owing to its being located upon a government timber berth, nothing could be done in the weather. Lately, however, a force of over 130 men have gone there to clear off the remaining timber.

Foley.—At this mine, No. 1, shaft is now down 72 ft., while the No. 2, a large vein upon the Northern portion of the claims; is down 65 ft. Work in both shafts is done by Ingersoll drills. Good progress is making, and encouraging results in ore are reported.

K. 231.—This property, embracing an area of 40 acres, was bonded to John B. Bryson, of London, England, last week. It adjoins the Kelly-Mosher claims, the East, and the Wiegand on the northwest, and is traversed by a series of auriferous quartz lodes.

La Seine.—Mail facilities have been very bad at this season. An arrangement is now in operation (for winter months), by which communications for us, addressed: Fort Frances, via Koochiching, Minn., affords us two mails per week instead of two per month as formerly.

La Seine River District.—Considerable activity prevails along the Seine, and as winter approaches mining material and supplies generally are being rushed forward. Mr. Julius Roper, mining engineer, has been visiting this district lately.

Ray Wiegand Claims.—Colonel S. W. Ray, accompanied by William Hamilton Merritt, has made an examination of the above mining claims, resulting in the purchase of the entire control of this large tract. Some very good samples were obtained. Mr. W. D. Ferguson, of London, Eng., after placing the Kelly-Mosher claims (lately bonded to him) under working contract for the winter, left to-day for England. Mr. Whitely is in charge of this work.

LATE NEWS.

(Special Telegram to the "Engineering and Mining Journal.")

DENVER, Colo., Dec. 26.

The chlorination mill at Lawrence, Cripple Creek district, was totally destroyed by fire on December 23d. It was the property of the Lawrence Gold Extracting Company, of which Capt. J. R. De Lamar is the largest individual owner. It was built about three years ago, removed to Lawrence, and enlarged to a capacity of 60 tons a day a year ago, since which time it has been running steadily and successfully. The loss of this mill will be a serious blow to the camp for some time, as none of the proposed mills have been constructed yet, and it will take at least 90 days to put any in operation. The property carried insurance which will cover about one-half the loss. The company will probably rebuild, but not on the same site, as it was found to be unsuitable owing to a lack of water for some months of the year, and it was impossible for shippers to send ore by wagon. The site of location of the new plant lies between Colorado City and Florence. It will have a capacity of 150 tons a day and will be so built that it may be enlarged readily.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Dec. 27.

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending Dec. 21st, and year from January 1st:

Shipped East and North:	1895. Week.	1895. Year.	1894. Year.
Allegheny, Pa.	45,983	3,172,324	1,257,021
Barclay, Pa.	1,128	45,293	§
Beech Creek, Pa.	69,025	2,897,526	2,534,592
Broad Top, Pa	§	§	581,926
Clearfield, Pa.	86,222	5,635,939	2,737,109
Cumberland, Md	§	§	§
Kanawha, W. Va.	§	§	2,702,451
Phila. & Erie	859	57,669	74,389
Pocahontas Flat	‡54,822	2,726,047	§
Totals	258,139	14,534,793	9,888,229

‡ Week ending Dec. 7th. § Returns not received.

Shipped West:	1895 Week.	1895 Year.	1894 Year.
Monongahela, Pa.	13,915	857,736	613,619
Pittsburg, Pa.	41,931	1,853,732	1,457,115
Westmoreland, Pa.	41,571	1,951,095	1,683,501
Totals	97,447	4,612,583	3,724,235
Grand totals	355,577	19,177,381	13,612,464

Production of coke on line of Pennsylvania Railroad for the week ending Dec. 21st, 1895, and year from January 1st, in tons of 2,000 lbs.: Week, 144,511 tons; year, 5,855,250; to corresponding date in 1894, 3,585,826 tons.

Anthracite.

The closing week of the year finds the anthracite coal trade listless and uninteresting. Very little is doing, and the eyes of producers are fixed longingly on the thermometer.

The exceptionally mild weather of the past fortnight has naturally prevented much of a demand for coal. Few dealers are obliged to buy, and they do not think present prices are low enough to justify heavy purchases as a speculation. Sellers, on the other hand, are not desirous of pressing their products on the market, as in view of the present weakness and limited demand any attempt to do so, on their part, would simply lower prices without increasing the number of orders materially.

It is a difficult thing to quote "market prices" because there is really little of a market. Stove is nominally quoted at $3.50 on board, but it is admitted that lower figures may be secured by buyers. Prices based on actual sales mean little because new business has been so light that there is no telling what "concessions" might be given if a desirable order should be brought in. Quotations for good coals are nominally as follows: $3.40@$3.50 for stove $3.15@$3.30 for egg; $3.10@$3.25 for chestnut, and $3.00 for broken, all net, on board.

It is now said that the companies are not restricting any more than they usually restrict at this time of the year when the holidays help to keep down the production, in other words, that in spite of the very light demand and warm weather they are mining as much as they would if there were snow on the ground and true winter weather. The restriction carried on while the attempt was making a week or two ago to come to some understanding, is no longer in force. Just how heavy stocks in sellers' hands are it is difficult to say, but there is little danger of any scarcity sufficiently great to advance prices 10c. a ton.

A cold snap is promised and much is expected of it. The trouble has been, so far this year, that the cold weather has been of short duration and has been followed by a warm spell which has prevented a continued heavy consumption.

Bituminous.

The soft coal trade is very dull. The slight improvement in the demand from points East of Cape Cod, noted in our last issue, has fallen off. New York harbor trade continues fair, and there is some spot business doing, but the greater portion of the shipments is still going to Sound ports.

The all-rail trade is not as good as it was, though tonnages are not appreciably smaller than last week. Orders, however, are scarcer and consumers seem to be pretty well supplied. Generally, there seems to be a disposition to wait until after New Year's before resuming normal activity. Producers, who in years past have always rushed shipments on the closing weeks of December in order to make a good tonnage record, seemed to be satisfied with their shipments this year and are making no efforts to increase their year's figures. Little improvement is looked for before the middle of next month.

Transportation from mines to tide continues fair and the car supply is good. Vessels are not plentiful and ocean freight rates show no decline from last week. We quote as follows from Philadelphia: To Boston and Salem, 95c.; Portland, $1; Providence, New Bedford, New Haven, Allyn's Point and other Sound ports, 80c.; Wareham, $1; Lynn, $1.10@$1.25; Newburyport, $1.10; Portsmouth, $1@$1.05; Bath, $1 05@$1.10. From Norfolk, Newport News and Baltimore rates are 10c. higher.

Nominal prices are unchanged. We quote f. o. b. at the various ports, as follows: Norfolk and Newport News, $1.90@$2.15; Baltimore, $2@2.20; Philadelphia, $1.75@2.20; New York harbor shipping ports, $2.20@$2 65; alongside New York harbor, $2.40@$2.75; alongside Boston, $2.75@3.

Buffalo.

Dec. 26.

(From Our Special Correspondent.)

The anthracite coal trade is very quiet, for we have had a "green Christmas." Mild weather prevailed for several days, closing with heavy rains. Navigation on the lakes has ceased. The last vessel arrived here on the afternoon of December 21st. Prices unchanged and market closes fairly firm.

Bituminous coal in fair demand for manufacturing purposes; dealers have not made any variation in the schedule of prices. Supply more than ample for trade requirements.

The Western New York Car Service Association has entered on another year of usefulness; Mr. W. W. Halsey continuing as manager and Mr. Charles A. Brunn as chairman. Over 550,000 cars were handled during the year, comprising those of the New York Central, the Erie, the Lake Shore, the New York & Pennsylvania and the Buffalo, Rochester & Pittsburg Railroads.

The Michigan Senator, James McMillan, introduced a bill in the Senate a few days ago for the purpose of allowing the construction of a high bridge across the Detroit River. It was referred to the Committee on Commerce.

Your correspondent wishes to express his best wishes for the future prosperity and success of the "Journal" and many "Happy New Years" to proprietors, editors, subscribers, advertisers and all interested.

Chicago.

Dec. 25.

(From Our Special Correspondent.)

There has been but a fair business transacted in anthracite coal in this market during the past week. The weather has not been such as to furnish any great demand for coal, and indications are that the remainder of the year will afford no better business than the week has shown. It has been raining here every day for almost the past two weeks. The supply of hard coal on the docks and rail is quite large and plenty ample to meet all demands.

There is absolutely nothing that would indicate firm prices, and to sell coal appears to be the ambition of some firms, the prices apparently cutting no figure whatever. The receipts of anthracite coal at Milwaukee for the year will be about 865,000 tons and that of soft coal nearly 500,000 tons. Out of town business is based like Chicago, on the weather conditions, and therefore but small amounts of coal are being shipped to points outside the city.

In bituminous coal the week has shown up only fair, the buying of coal being as a rule for limited quantities for immediate use. Receipts of soft coal by rail continue large, and there is now sufficient of it on hand to last several weeks. Prices are not firm.

Pittsburg.

Dec. 26.

(From Our Special Correspondent.)

Coal.—The coal men received a Christmas gift in the way of a rise in the Ohio, Monongahela and Allegheny rivers, and it was very acceptable. The amount estimated to leave the present week is about 11,000,000 bushels, the principal part being destined for the Southern market. The present run so far has been a very successful one, and only one slight accident occurred. The year 1895 will go down into history, between low water and coal losses, as one of the most disastrous on record, with coal shipments only during five months. After the present run has departed there will be enough coal remaining in port to make another run as large as the present one. River men, generally, will spend Christmas on the flowing tide handling "black diamonds" destined for the South and West. The railroad coal trade is now in much better shape than it was a short time ago, mines are running full and liberal shipments are the rule, although the lake shipping season was closed a week ago. The stocks on the docks of the coal shipping ports have been closed out pretty well, leaving this branch of the trade in better condition than in former years.

Since the above was written bad news has been received. An unfortunate accident at Merriman caused delay and loss. The channel is again blocked with sunken crafts; 23 boats and barges are reported wrecked and many tons will be unable to get away. The wrecks will be cleared away as soon as possible. Several million bushels of coal will be detained, as the river is falling. The coal lost amounts to 300,000 bu. The losses this month will reach 1,500,000 bu.

Connellsville Coke.—The important question at

present is, will there be an advance in prices? The H. C. Frick Coke Company has not prepared to make the rumored advance in prices for January 1st, 1896, and there is an intimation that present prices will remain. An authority asserts there is no ground for higher coke prices. During the autumn months the market was full of rumors that every product from coke to the best grades of iron would be held at stiffer rates. The rumors were not very definite, but were so numerous, that every one took notice and looked upon them as a sort of official warning that something was about to happen. The coke trade is on the downward grade, both as to production and output. Just as the water scarcity was thought to be over hard freezing weather dried up the small streams and springs.

The output was considerably reduced by a scarcity of cars. The week's output for the region shows 16,189 ovens in blast, with 1,748 idle. There were no changes in the active and idle list; production in the region amounted to $172,065 tons, a decrease of 2,743 tons. In running order 16,189 ovens made six days and 365 ovens four days. The H. C. Frick Company made six days in all its 25 plants. The McClure Company made six days on 11 plants; all the other plants made full six days.

Shipments for the week amounted to 9,839 cars; decrease, 352 cars. The distribution was as follows: To Pittsburg, 2,506 cars; to points East, 2,028 cars; to points west of Pittsburg, 5,305 cars. Prices remain unchanged. Since the above was written word comes that wages will be advanced 12 to 18% on January 1st.

Shanghai, China. Nov. 22.

(Special Report of Wheelock & Co.)

Coal.—The market for Japan coal is in much the same state as when we last wrote; advices from Japan inform us that prices have advanced slightly, and local consumption seems still on the increase. This naturally prohibits us from obtaining the article to suit the pocket of the native. At present, offers of any kind are difficult to get, with the result that sales to actual consumers are the only business transacted during the past fortnight. The one inquiry for Cardiff we have had has tended to elate holders' ideas, and they will not now sell any quantity inside our quotation, though stocks are still large and consumption limited. We note the arrival of one cargo, 500 tons, of American anthracite, which was disposed of at an extremely good price. There is nothing to report in Sydney Wollongong, except the arrival of 1,131 tons sold for delivery a few months hence; market is steady at quotations. Quotations are: For American anthracite, 9 taels per ton; Cardiff, 10·50 taels per ton; Australian Wollongong, 9·50 taels per ton. For Japan we quote for Takasima lump, 5·75 taels per ton; Namazuta lump, 4·75 taels per ton; other sorts, 3·25@3·50 taels per ton.

Kerosene Oils.—The market for oil has steadily advanced and a fair number of transactions have taken place, the whole stock now being in the hands of natives who are having a good time among themselves with the result that the prices they are now receiving give a handsome profit on their purchases. It is feared that the steel ship "Barcraig" has been lost; she is now 210 days out and has never been spoken. Large premiums are being paid to the insurance offices, but we believe they are now refusing to cover at any price. Stocks in godowns are now 379,588 cases American, and 221,196 cases Russian. Quotations are: For American Devoes 1·69 taels per case, and Chester 1·65 taels per case: for Russian we quote Batoum at 1·60 taels per case, and Batoumbulk at 1·55 taels per case.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Dec. 27, 1895.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Dec. 28 1894. F'ces.	Tons.	Dec. 27, 1895. F'ces.	Tons.	From Jan. '94. Tons.	From Jan., '95 Tons.
Anthracite.	33	16,665	53	28,030	887,740	1,260,427
Coke...	73	77,511	162	184,150	5,132 285	7,766,330
Charcoal...	24	4,540	29	5,450	217,778	222,295
Totals ...	130	98,716	244	227 630	6,237,803	9,249,052

The "war scare" of the past week has not been without its effect on the iron market, and it looks somewhat as if the result would be to end the long waiting stage by heavier concessions from the makers of raw iron than we have heretofore thought probable. The prospect of disturbed trade is enough to lower the market of itself; but the greatest effect, probably, has been in calling attention to the very bad condition of our national finances, and the almost certainty that nothing will be done to improve them. The establishment of credit on a solid basis is all that was needed to open the prospect of a year of great prosperity to the iron trade. It looks now as if 1896 contracts would be slowly closed, and as if buying only for immediate necessities would be the rule for some time to come.

The Southern pig iron producers have decided not to make the reduction of $1 per ton on No. 1 foundry—and other grades in proportion—which had been proposed and strongly urged in some quarters. Many think this a mistake. The probable result seems to us to be either a much reduced sale of Southern pig, or a good deal of quiet cutting by individual sellers; the latter the most likely outcome of the situation.

The talk of higher ore prices is still heard, but the arrangements in progress to market an enormous tonnage of Mesabi ores next season, coupled with the uncertain state of the pig iron market, do not look like a very high figure on 1896 contracts.

NOTES OF THE WEEK.

It is reported that the proposed increase of Connellsville coke prices from $1.60 to $2 on January 1st, will not be made. For the present, prices will be announced from month to month. It is thought now that no change will be made for January at least.

The traffic of the Sault Ste. Marie Canal for the season of 1895, is now completely made up. The total freight tonnage was the largest ever reported, and is almost exactly double that of seven years ago. The figures are 15,062,580 tons in 1895 against 13,195,860 tons in 1894; 10,796,572 tons in 1893; 11,214,333 tons in 1892; 8,400,685 tons in 1891; 9,041,213 tons in 1890; and 7,516,022 tons in 1889.

According to "Stahl und Eisen" the production of pig iron by the German blast furnaces in the month of October was 511,264 metric tons, showing an increase of 40,329 tons from the month of September, and of 20,330 tons over October, 1894. For the 10 months ending October 31st, the total output was 4,788,571 tons, showing an increase of 209,391 tons over the corresponding period last year. The recent reports from the blast furnaces show an increase of activity owing especially to the demand from the steel makers.

New York. Dec. 27.

The "war scare" had a special influence on the local market, the fluctuations in the stock market being felt in this city with particular force. The effect for the present has been to make a very dull market. The larger foundries are saying very little about contracts and will probably keep quiet until there are some better indications for the future. There has been a perceptible slackening in the small orders which make up so large a part of our market.

The bids for material for the new United States Appraiser's stores in this city have been opened. Twelve bids were received, the figures being as below:

	Bessemer.	Open Hearth.
Post & McCord, New York.....	$339.550	$339.550
Benj. Hyde, Chicago.....	339,880	339,800
Pennsylvania Steel Co.....	341.313	345.541
F. J. Hvers, Hamilton, O.....	344,400	366,400
M. Giblin, New York.....	352,220	356 220
Edge Moore Bridge Co.....	371,500	374,500
C. A. Schneider's Sons, Washington..	377.583	377,583
Passaic Rolling Mill Co.....	385,953	395 954
Youngstown Bridge Co.....	405.987	408,734
New Jersey Steel and Iron Co.....	406,600	406,600
Berlin Iron Bridge Co.....	419.844	425,947
Leach & Son, Chicago.....	429.393	398 763

The total quantity is about 6,000 net tons. It is to be noted that there is little or no difference in the prices named for Bessemer and open-hearth steel. The lowest bid works out at an average of 2·83c. per pound all round.

Pig Iron.—A light business is the rule, and demand is not pressing. There is more demand for low-grade irons just now than for the better makes. A disposition to press Southern iron is manifest, and there are rumors of shaded prices so general that some truth in them seems possible, though it is very difficult, if not impossible, to locate any case of the kind.

We quote, for tidewater delivery, nominally without change: Northern No. 1, $13.75@$14 25; No. 2, $12.75@$13 25; gray forge, $12@$12.50. For Southern iron prices are: No. 1 foundry, $13 50@$14: No. 2 foundry, $13 25@$13.75; No. 1 soft, $13.25@$13.75; No. 2 soft, $12.75@$13.25; forge, $12@$12 50. An early revision is probable.

Cast Iron Pipe.—Besides the New England contracts referred to last week, inquiries from several New Jersey towns are noted, and small contracts from Mount Vernon and New Rochelle, in New York are also spoken of. Buyers are holding back a little, however, hoping for lower prices.

Spiegel isen and Ferro-Manganese.—The market is very quiet, and we quote nominally $51.50@$52 for ferro and $25@$25.75 for spiegeleisen. Imports continue to be reported on a considerable scale, chiefly because the Carnegie furnaces found it more profitable to make Bessemer iron than ferro, and were long ago turned over to the more advantageous work.

Steel Billets.—The market is quiet with few sales and prices a little lower, say $18.50@$19 for billets at tidewater. For wire-rods we quote a lower figure also, say $27@$28 for New York delivery.

Merchant Iron and Steel.—The closing week of the year is never very active and few orders are noted. No material changes are reported. Bars are 1·25@1·40c. for common and 1·35@1·50c. for refined. We quote for soft steel bars 1·30@1·40c.; open-hearth machinery steel, 1·50@1 60c.; steel hoops, 1 65@1·75c.; steel axles, 1·65@1·80c.; links and pins, 1·60@1·75c.; tire steel, 1·85@2c.; spring steel, 2·10@2·25c. Rivets are 2·20@2·30c. for steel, and 3@3·30c. for iron.

Structural Iron and Steel.—The most notable event has been the contracts for the Appraisers' stores, referred to above. No other new business of importance is noted, and several orders which were under negotiation are suspended for the present. We quote, without change, for angles, 1·55@1·65c.; channels, 1·70@1·80c.; tees, 1·75@1·85c.; beams (up to 15-in.), 1 70@1·80c. for large orders, and 1·95@2·05c. for small lots.

Plates.—We can only say that business is quiet and prices unchanged. Universal mill plates are 1·60@1·70c. For steel plates we quote: Tank, 1·55@1·65c.; boiler shell, 1·70@1·80c.; good flange, 1·80@1.95c.; firebox, 2·20@2·50c. Charcoal iron plates are 2·20@2·30c. for shell, 2·70@2·80c. for flange, and 3·20@3·30c. for firebox.

Steel Rails and Rail Fastenings.—Rails are unchanged at $28 per ton at mill, or $28.75 at tidewater for standard sections. For street rails we continue to hear of inquiries, but no contracts closed.

Rail fastenings are quiet. Quotations are: For fish and angle-plates, 1·45@1·50c.; spikes, 1·75@1·85c.; bolts, 2·05@2·15c., for square nuts, and 2·15@2·25c. for hexagon nuts.

Scrap Iron.—While demand is fair, there is less pressure to buy, and prices are a little lower, say $9.75@$11 per ton, according to size and quality of lot. Some more old steel rails have been offered in this market at $14 per ton, without takers.

Chicago. Dec. 25.

(From Our Special Correspondent.)

There has been no business of importance transacted in the iron or steel trade in this city during the past week, the quiet state of affairs being due to the holidays and to the unwillingness of consumers to come into the market before the opening of next year. There is some weakness in prices, and it is probable that 1896 will open with reduced quotations on a number of lines. Inquiry is very good, however, and would indicate a fair business for January.

Pig Iron.—A couple of thousand tons will represent fully the total sales of the week, and the sales were fairly divided among the Northern and Southern furnaces. Makers of car wheels are doing most of the buying, but their orders are enough seemingly for temporary wants only. Lake Superior charcoal iron was in fair demand. Inquiry is quite large for next year's business. Prices are still unchanged, but are weaker, and a reduction seems inevitable. Quotations are as follows: Lake Superior charcoal, $16; Lake Superior coke, No. 1, $15@$15.50; No. 2, $14.50@$15; No. 3, $14@$14.50; local Scotch No. 1, $15; No. 2, $14.50; No. 3, $14; Jackson County silveries, $15.50@$16; Southern coke, foundry, No. 1, $14.25; No. 2, $14; No. 3, $13 75; Southern soft, No. 1, $14 25; No. 2, $14; Southern car-wheel iron, $17.50; Southern silveries No. 1, $15.25; No. 2, $15; Tennessee charcoal No. 1, $13@$13.50; Bessemer, $18. Ohio strong softeners, $15@$15.50.

Structural Material.—The 1,200 tons of material necessary for the building of the Wabash avenue extension of the elevated loop has not been placed yet, but will be shortly. A few big buildings in Western cities are now in this market for structural material, one in San Francisco requiring nearly 1,500 tons. General business is fair, with prices slightly reduced. Quotations are as follows: For universal plates, 1·15@1·70c.; beams and channels, 1·85@1·90c; angles, 1·75@1·80c; tees, 2@2·10c.

Merchant Steel.—There has been no business to speak of transacted in merchant steel during the week, but inquiry is very good, and January bids fair to bring a considerable business with it at probably a slight decrease in quotations. Prices are as follows: Tool steel, 5@7·50c.; Bessemer bars, 1·65@1·75c.; smooth finished machinery, 1·80@1·85c.; tire steel, 2·10@2·15c.

Bar Iron.—Bar iron is now selling here at 1 35c. f. o. b. carload lots. The reduction in price has increased business slightly during the week. Some few good contracts were made, and inquiry is fair.

Billets and Rods.—There will be no sales of any importance in either billets or rods until the local mills decide on prices for 1896. They have been practically refusing quotations for some time.

Steel Rails.—But few sales of small quantities have been made, and like billets and rods, the mills here will not quote on any extensive business for the time being.

Old Rails and Wheels.—One sale of old iron rails is reported at $15.50. At that price iron rails are gradually getting to where they belong. There were no sales of old wheels; the quoted price is $14.

Cleveland, O. Dec. 26.

(From Our Special Correspondent.)

Iron in the local market is waiting for something to turn up. Bears are probing for the bottom and assert they have not found it. It is rumored that a transaction or two has been made at about 10c. below the $11 Valley Bessemer price, announced last week, but the rumor is denied. It is true, however, that pig iron stocks are rapidly increasing. It is feared that some holders may be disposed to make sales at whatever prices the product will bring, even down to cost, in order to reduce stocks, but underneath all this uncertainty and general weakness there appears to be an element of strength. The transactions on about a $11 Valley basis are for spot cash and for immediate or early delivery. Some of the large consumers have been sounding the market and trying to make engagements covering a large portion of next year at present prices, but furnacemen decline to make these long time contracts. The general feeling is that after the new year opens the present lifeless condition of the market will be succeeded by better buying and that the improvement will keep on steadily until spring.

Some furnacemen are asking the ore shippers to name their prices for next season at an early date, with a view to strengthening the iron market, but the ore men maintain the conservative opinion that it would be disastrous to the entire iron trade to name prices from which they would have to recede later in the year. They therefore prefer to wait until the market assumes a more tangible shape.

Vesselmen are seeking the views of each other as to what the carrying charges for season charters should be next year. The ore shippers are not yet actively looking for vessels, but when approached by the vessel owners say they are ready to do business on a basis of $1 from the head of the lakes to Lake Erie ports. The carriers do not assent to those terms, and no chartering has been done during the past few weeks. A prominent vessel broker reports to-day that he has secured the opinions of 75 per cent. of the lake carriers, and that none will charter below $1.10, while many claim they must have at least $1.25, or they will run wild next season. They urge that the volume of traffic on the lakes next year, including grain and lumber, will exceed the carrying capacity of the tonnage notwithstanding the large accessions which will be made to the big steel fleets during the year.

There are a few unimportant transactions in iron ore from the stock piles on the docks, chiefly the non-Bessemer varieties, at unchanged prices. We quote: Standard specular Bessemer, $4.25@$4.50; standard hematite Bessemer, $3.75@$4; standard specular non-Bessemer, $3.25@$3.50; standard hematite non-Bessemer, $2.75@$3.

Philadelphia. Dec. 27.

(From Our Special Correspondent.)

Pig Iron.—To all appearances a great deal of business will be done in pig iron after the holidays. The question at issue is, will prices go lower? Large buyers who two weeks ago were on the point of ordering have decided to wait. They think prices will be more settled in two weeks. To-day's average prices are $13 for No. 1, $12.50 for No. 2 and $11.25@$12 for forge. Very little iron is moving.

Steel Billets.—Billet buyers have bought heavily since Monday, at $18.50 delivered. Large buyers are offering $18, and to-day telegraphic instructions as to acceptance are awaited.

Merchant Bars.—Prices are weak and irregular at 1·30@1·50 but everybody is waiting and there is really nothing to say.

Skelp.—The skelp people say there is every prospect for fair business in January and later, but at declining prices because of the enormous capacity. Grooved is still quoted at 1·30.

Sheets.—The sheet mills will take a good rest; meanwhile the agents will scour for orders.

Wrought Pipe.—"We are doing nothing, but there is business to come soon," is the only reply that could be extracted this week. Black butt, 57½; butt galvanized, 52½.

Merchant Steel.—Prices are weaker for quick deliveries Store quotations are not so strong. Mill men are in hopes of capturing a great deal of business in January for factory and shop work.

Plate and Tank.—Everything is unusually quiet just now, and parties who have plates to buy are waiting despite some very strong inducements that were held out this week by Eastern plate makers.

Structural Material.—Everything is quiet at present; no figures are being given on work in sight. Manufacturers said on Monday that there was no room for shading on small orders. It would take very little business to lead to stronger quotations.

Steel Rails.—No report is possible in the present condition of the market. Brokers say that even if slates do advance there will be too great a difference between the advance and No. 28.

Old Iron Rails.—In view of the fact that none are being sold the market is described as weak.

Scrap.—Every holder who has good railroad scrap is holding on to it in view of the expected coming demand.

Pittsburg. Dec. 26.

(From Our Special Correspondent.)

Raw Iron and Steel.—The market for iron and steel products has developed nothing of special importance and very little that is encouraging for the future, so that the report must be of the same tenor as several immediately preceding—dull, weak and irregular. There are some indications of an improved demand for pig iron, but with so many sellers it will be found difficult to impart anything like a steady tone to the market. The same remarks are applicable to the steel trade, although in that particular department distinctly lower prices are in orce, and, as a matter of fact, it may be said in general terms, that everything can be bought for less money than would have been accepted a week ago. As a matter of course improvement is predicted in the near future, but in the meantime the market is unmistakably dull and prompt buyers would be able to place good-sized orders for iron at prices that in ordinary times would be unusually tempting.

The present report closes the year 1895, which has been a very eventful one in many ways. The first week in January recorded Bessemer sales $9.90@$10; grey forge, $9@$9.25; No. 1 foundry, $10.75@$11; steel billets, $14.90@$15.10; we all hope that no such figures will be recorded during 1896. The fact is self evident, production is now too large, and it must be reduced to a reasonable figure before we can expect an active market and better prices. The question then comes up, who will first close down their furnaces? The general impression is that we have reached the lowest prices, and that the middle of January will witness an improved demand and better prices; the week will be a short one on account of Christmas.

The announcement is made that January 1st will see cokeworkers' wages advanced 12% to 18%. This news is important and will force the price of pig-iron and other products to a higher figure. The outlook for the new year promises well for iron and prices. The present quotations are nominal.

COKE SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
5,000	Bessemer, Jan., Feb., Mar., Pitts.	$11.50
3,000	Bessemer, Jan., Feb., Mar., Valley	11.10
3,000	Bessemer, Jan., Feb., Pittsburg.	11.75
3,000	Bessemer, Dec., Pittsburg	11.95
1,000	Bessemer, Dec., Valley	11.00
1,000	Bessemer, Jan., Feb., Pittsburg.	12.00
1,000	Bessemer, Feb., Mar., Pittsburg.	11.85
1,000	Bessemer, Jan., Feb., Mar., Pittsburg.	12.00
800	Bessemer, Dec., Pittsburg.	11.90
500	Gray Forge, Prompt, Pitts.	11.50
500	Bessemer, Dec., Pittsburg.	11.75
500	Bessemer, Dec., Pittsburg.	11.80
300	Bessemer, Dec., Pittsburg	11.75
200	No. 2 Foundry, Pittsburg.	13.50
200	No. 1 Foundry, all on Pittsburg.	14.50
100	Gray Forge, Prompt, Pitts.	12.00
50	Nut Iron, Pitts.	12.00

CHARCOAL.

100	Cold Blast	$23.00
100	Cold Blast	23.00
75	No. 2 Foundry	17.00
50	Warm Blast, Extra	21.00
50	No. 2 Foundry	17.00

BLOOMS, BILLETS AND SLABS AT MILL.

Tons.		Cash.
3,000	Billets, Jan., Feb, Mar., at Wheeling	$15.90
2,000	Billets, Jan. to May, at Wheeling	16.00
1,000	Billets, Jan., Feb., at mill	16.75
1,000	Billets, Jan., Feb, Mar., at mill	17.00
500	Billets, Jan., at mill	16.90

STEEL BARS.

7,000	Bessemer Bars, Jan. to July, at Pitts	17.00

MUCK BAR.

200	Neutral	$20.00

BLOOMS, BILLETS AND BAR ENDS.

250	Billet Ends	$14.00

STEEL WIRE RODS.

300	5-gauge, at mill	$24.00

SHEET BARS.

350	Delivered.	$19.00

LD RAILS AND SCRAP

300	Steel Rails	$13,25
300	Heavy Steel Scrap, gross	14.00
200	Busheling Scrap, net	12.10
100	Cast Borings, net	12.00
100	Wrought Turnings, net	8.00

CHARCOAL.

100	Cold Blast	$23.00
100	No. 2 Foundry	17.00
50	No. 2 Foundry	17.25
50	Cold Blast	23.25
50	No. 3 Foundry	17.00

METAL MARKET.

NEW YORK, Friday Evening, Dec. 22, 1895.

Gold and Silver.

Prices of Silver per Ounce Troy.

Dec.	St. Ex.	London Pence.	N. Y. Cts.	Value of $1.	Dec.	St. Ex.	London Pence.	N. Y. Cts.	Value of $1.
21	4·89	30 7/16	66½	·514	25	.....	.....	.....	.....
23	4·89	30 7/16	66½	·514	26	4·89½	30 7/16	66½	·514
24	4·89½	30 7/16	66½	·514	27	4·89½	30 7/16	66½	·514

The United States Assay Office at New York reports the total receipts of silver at 69,000 oz. for the week.

Silver has been quiet over the Christmas holidays at 30 7/16d. Orders have come on the market to day (Friday) for considerable amounts at an advance over this figure, and the market closes firm. China and Japan do not appear to be buyers at present.

Gold and Silver Exports and Imports.

At all United States ports, November, 1895, and years 1895 and 1894 in coin and bullion:

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Nov.	$14,066,460	$592,584	$5,418,091	$1,027,053	E. $17,861,914
1895..	87,130,639	31,229,563	48,677,148	10,399,518	E. 96,178,676
1894..	92,017,535	20,229,611	43,352,917	9,036,398	E. 106,103,443

Imports and exports of gold and silver in ores for the eleven months to November 30th are reported as below:

	Gold.		Silver.	
	1894.	1895.	1894.	1895.
Imports	$687,674	$1,745,847	$6,879,558	$11,399,855
Exports	28,345	355,223	200,982	272,120
Excess, Imports.	$659,329	$1,390,624	$6,678,576	$11,127,735

These imports and exports in ores are not included in the table of exports and imports of coin and bullion given above.

Adding the exports and imports in ores to those in coin and bullion, we have the following statement for the eleven months of the present year to November 30th:

	Exports.	Imports.	Excess.
Gold	$89,485,862	$32,975,410	E. $56,510,452
Silver	48,949,268	21,799,403	E. 27,149,865
Total	$138,435,130	$54,774,813	E. $83,660,317

The statement includes all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending December 27th, 1895, and for year from January 1st, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$1,783,198	$149,366	$836,400	35,052	E. $2,465,180
1895..	71,0 9,859	29,094,060	37,596,832	1,617,921	E. 77,694,797
1894..	95,158,204	16,494,031	33,866,9 1	1,689,847	E. 110,841,277
1893	72,822,449	63,017,178	33,797,533	3,195,644	E. 40,407,160
1892..	71,196,786	8,518 586	23,295,916	3,057,768	E. 82,916,348

Of the gold exported for the week $43,095 went to the West Indies and the balance to London: of the silver $100,000 went to France and the rest to London. The gold imported came from the West Indies; the silver from South America.

FINANCIAL NOTES OF THE WEEK.

While the war scare has partly spent its immediate force, the effect on business is still most unfavorable. The excitement in the stock exchanges has been somewhat quieted and a semi-panic prevented, partly by the temporary influence of the holidays, but more by the action of the bank presidents in New York in deciding to issue Clearing-house certificates if needed. General business is in an excited, uncertain and unsatisfactory state for the time being, and everyone is looking with some anxiety to the future.

The President this week sent a brief message to Congress urging immediate action on the financial question in view of the constant diminution of the gold reserve and the general uneasiness.

The response of the House of Representatives to this message was the preparation of two bills by the Committee of Ways and Means, which were at once introduced in the House and forced through without discussion by the majority. The committee proceeded on the assumption that more revenue is all that is needed, and one of the bills accordingly provides for increased duties on nearly everything. The other bill provides for the issue when necessary of 3% bonds, payable "in coin," to meet deficits and keep up the reserve. The loan bill is carefully framed to avoid any interference with the provisions of the existing law requiring the re-issue of the greenbacks redeemed. It is quite plain that these bills do not meet the exigencies of the case at all; but it is the general opinion that they will not pass the Senate or even become laws.

It is currently understood that negotiations are pending for a new loan, probably of $100,000,000, though no definite announcement has yet been made. It can be safely assumed, however, that there will be a loan. It is said that the issue will be of 4% bonds, under the existing law, and it will hardly command much, if any, premium above par. What amount of gold it will net to the Treasury seems somewhat doubtful. Under existing circumstances no considerable amount can be placed abroad, and how much gold can be obtained from the banks here is an open question. It is not unlikely that if they should furnish the gold at first some of them would replenish their gold reserves from the Treasury later, as was the case with the first $50,000,000 loan. The country would then be paying a large amount of interest yearly for another lesson on the cost of our present currency system—which ought to be entirely unnecessary. All sorts of rumors have been current; among others that a new syndicate is to be formed which will undertake to keep up the gold reserve for a year; with other reports which cannot be traced to any reliable source.

Gold exports for the week so far have been $1,700,000. The amount taken for shipment by Saturday's steamers is reported at $2,000,000. The rate of sterling exchange is quite high enough to favor heavy exports, but the proposed bond issue and other causes have prevented shipments from going to the point they might otherwise have reached. The selling out of American securities abroad continues on a considerable scale.

Contrary to a very common popular idea, gold from this country is not at all welcome in London. In a money market where the surplus seeking for employment is so great that bankers are making call loans at 0⅝% a year, and discounting commercial paper at the rate of 0½% to 0¾% a year, additional supplies are not desired, and bankers would be only too glad to leave their surplus funds here and to enlarge the amounts, if they felt safe.

The following is the membership of the important financial committees of the House of Representatives as announced this week:

Ways and Means—Republican (11)—Nelson Dingley Jr. (Me.), Sereno E. Payne (N. Y.), John Dalzell (Penn.), Albert J. Hopkins (Ill.), C. H. Grosvenor (Ohio), Charles A. Russell (Conn.), J. P. Dolliver (Iowa), George Steele (Ind.), M. N. Johnson (N. Dak.), Walter Evans (Ky.) and J. A. Tawney (Minn.) Democrats (6)—Charles F. Crisp (Ga.), Benton McMillin (Tenn.), Henry G. Turner (Ga.), John C. Tarsney (Mo.), Joseph Wheeler (Ala.), and J. J. McLaurin (S. C).

Banking and Currency—Republicans (10)—Joseph E. Walker (Mass.), Marriott Brosius (Penn.), H. U. Johnson (Ind.), Henry C. Van Voorhis (Ohio), J. H. McCleary (Minn.), Charles M. Fowler (N. J.), Jacob

Lefever (N. Y.), George Spalding (Mich.), W. A. Calderhead (Kan.), R. J. Hill (Conn.) and E. D. Cooke (Ill.). Democrats (6)—Nicholas N. Cox (Tenn.), Seth W. Cobb (Mo.), James E. Cobb (Ala.), J. C. C. Black (Ga.), Francis G. Newlands (Nev.) and John K. Cowen (Md.).

Coinage. Weights and Measures—Republicans (9)—Charles W. Stone (Penn.) Martin N. Johnson (N. Dak.), W. F. L. Hadley (Ill.), Addison S. McClure (Ohio), James H. Southard (Ohio), B. L. Fairchild (N. Y.), H. C. Loudenslager (N. J.), and Frank J. Cannon (Utah). Democrats (6)—John M. Allen (Miss.), J. H. Bankhead (Ala.), Thomas C. McRae (Ark.), S. M. Sparkman (Fla.), James G. Spencer (Miss.), and R. H. Clarke (Ala.).

The figures collected by the Comptroller of the Currency as to State and private banks show a large increase this year in deposits and capital. The figures are as follows:

	State banks.	Private banks.
Total resources	$1,447,545,818	$130,617,342
Capital stock	250,311,795	33,281,845
Deposits	712,410,423	81,824,932

The private banks are very unevenly distributed, according to the different legislation of the States. Illinois stands at the head in the order of capital, Iowa second and Ohio third, while Texas is fourth.

At a meeting held recently in Philadelphia, the bankers of Pennsylvania decided to form a state association, and a plan was adopted.

The statement of the United States Treasury on Thursday, December 26th, shows balances in excess of outstanding certificates as below, comparison being made with the corresponding day of last week:

	Dec. 19.	Dec. 26.	Changes.
Gold	$72,505,530	$68,085,850	D. $4,419,690
Silver	14,296,490	14,285,911	D. 10,479
Legal tenders	74,172,490	78,477,795	I. 4,305,305
Treasury notes, etc.	22,968,207	22,232,374	D. 735,833
Total	$183,942,717	$183,081,930	D. $860,787

Government deposits with national banks on the same date amounted to $14,973,017, a decrease of $111,230 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $138,414,280. Against these are held in the Treasury 14,412,608 coined standard silver dollars, and silver bullion purchased at a cost of $124,001,762, making a total of $138,414,370.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending December 21st gives the following totals, comparisons being made with the corresponding weeks in 1894 and 1893:

	1893.	1894.	1895.
Loans and discounts	$416,287,000	$498,266,200	$489,646,600
Deposits	498,817,700	554,509,700	517,290,800
Circulation	12,256,500	11,191,400	13,973,100
Specie	104,520,700	72,097,000	67,856,500
Legal tenders	98,129,000	100,431,100	75,555,000
Total reserve	$202,649,700	$172,528,100	$146,411,500
Legal requirement	124,711,925	138,627,675	129,322,700
Surplus reserve	$77,937,775	$33,900,425	$17,088,80

Changes for the week this year were an increase of $360,700 in specie; decreases of $1,302,525 in surplus reserve; $3,344,300 in loans; $3,104,400 in legal tenders; $5,764,700 in deposits, and $17,000 in circulation.

For convenience of comparison we have grouped together in the table below the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$67,856,500
1894	.....	.....	72,097,000
Bank of England	$222,882,625	.....	222,882,625
1894	166,811,945	.....	166,811,945
Bank of France	392,598,700	$247,895,500	640,584,200
1894	413,913,911	248,394,166	662,308,077
Imp. Bank of Germany	.....	.....	220,440,000
1894	.....	.....	267,310,000
Austro-Hungarian Bank	143,032,900	58,613,900	201,646,800
1894	75,525,000	70,810,000	146,335,000
Netherlands Bank	18,586,000	34,274,000	52,860,000
1894	20,416,000	34,369,000	54,785,000
Belgian National Bank	.....	.....	19,976,000
1894	.....	.....	25,852,000
Bank of Spain	40,022,000	52,277,000	92,299,000
1894	40,021,000	54,244,000	94,245,000
Bank of Italy	59,675,000	9,725,000	69,400,000
1894	59,990,000	12,576,000	72,560,000
Imp. Bank of Russia	351,560,000	46,680,000	398,240,000
1894	.....	.....	.....

The return for the Associated Banks of New York is of date December 21st; all the others are of date December 19th, except the Bank of Italy, whose return is dated November 20th, and the Bank of Russia, November 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports its gold only, not considering silver at all. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately. The Bank of France return is of date December 26th; the other European bank returns were this week delayed by the Christmas holidays.

Shipments of silver from London to the East for the year to December 12th are reported by Messrs. Pixley & Abell's circular as below:

	1894.	1895.	Changes.
India	£4,836,053	£3,498,096	D. £1,337,957
China	2,711,771	1,630 023	D. 1,081,748
The Straits	1,189,746	753,883	D. 435,863
Total	£8,737,570	£5,882,002	D. £2,855,568

Arrivals for the week were £101,000 in bars and £6,000 in Mexican dollars; a total of £107,000, all from New York. Shipments for the week were £63,000 bars to India and £22,100 in Mexican dollars to the Straits; a total of £85,100.

Indian exchange has been higher, the 50 lakhs of Council bills sold in London bringing an average of 13⅛d. per rupee, and a strong demand for bills on the East generally being noted. No movement whatever toward remitting any of the Japanese money now lying in London is noted. The other Eastern exchanges were also strong, bills on Hong Kong and the Straits selling in London at 24⅛d. per dollar, and on Shanghai at 34⅛d. per tael.

The foreign merchandise trade of Great Britain for the 11 months ending November 30th, is is given by the Board of Trade returns as below:

	1894.	1895.
Imports	£375,399,574	£379,720,125
Exports	251,832,277	261,932,953
Excess, imports	£123,567,297	£117,787,172

This shows an increase of 1·2% in imports and of 4·0% in exports. Nearly one-third of the total increase in imports was in grain of various kinds. It is noted that there has been a general increase in prices, and that while values of both imports and exports show gains, there is generally a falling off in quantities. The movement of gold and silver for the 11 months is reported as follows:

	Gold.		Silver.	
	1894.	1895.	1894.	1895.
Imports	£25,977,682	£31,881,559	£10,290,114	£9,881,925
Exports	13,235,423	19,713,911	11,454,242	9,579,504
Excess	I. £12,742,259	I. 12,167,648	E. 1,164,128	I. 302,421

The large increase in gold imported this year was more than balanced by that in exports, the surplus retained showing a decrease of £574,611, or 4·3% from last year.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked
Mexican dollars	$0.52⅛	$0.54
Peruvian soles and Chilean pesos	.46⅛	.49
Victoria sovereigns	4.87	4.90
Twenty francs	3.86	3.90
Twenty marks	4.75	4.80
Spanish 25 pesetas	4.83	4.85

Other Metals.

The political controversy, which resulted in quite a serious disturbance of our financial system, and from which we are now recovering, has fortunately not had any adverse influence on the metal markets, either here or abroad, except in so far as the dullness that we had to contend with for several weeks past became more pronounced. Values, however, were affected but very slightly.

Copper is still very inactive; buyers and sellers continue to pursue that waiting attitude of which we made mention in one of our recent issues. Had it not been for the wise policy not to press sales, which most of the producers adopted, prices would probably be lower than what they now are, but we doubt that they would have resulted in much business. It is but natural that, in view of what transpired during the last 10 days, consumers do not feel encouraged to make any new contracts, but that they will have to do so in the near future is beyond a doubt. It is true business has fallen off, and the supplies which they contracted for a few months ago will in a good many cases be sufficient to cover their wants for next month, but from that time on they have nothing to fall back upon.

In the absence of actual business, the quotations are more or less of a nominal character. We quote: Lake 10½, electrolytic 10c., electrolytic cathodes 9¾, and casting copper also 9¾c.

The foreign market early in the week opened at £42 10s., and closed on Tuesday at £42 7s. 6d., since which time no reports have been received. For manufactured kinds we quote: English tough, £45 10s.@£45 15s.; best selected, £46@£46 10s.; strong sheets, £52 5s.@£52 10s.; India sheets, £50 10s.@£51; yellow metal, 4⅝d.

Copper Exports.—The exports of copper from the port of New York during the week ending December 27th, as reported by the New York Metal Exchange, were as follows:

Copper:		
London—Massachusetts	Ingots	50 tons
Liverpool—Majestic	"	58 "
Hamburg—Palatia	Bars	42 "
" "	Plates	20 "
" "	Ingots	5 "
Antwerp—Kensington	"	10 "
" "	Pigs	50 "
Rotterdam—Edam	Plates	316 "
Rotterdam—Veendam	"	10 "
Havre—La Champagne	"	25 "
Matte:		
Liverpool—Etruria		74 "
" —Majestic		45 "

Exports of copper from Baltimore for the week ending December 26th, as reported by our special correspondent, were as follows:

Copper:		
London—Lough Erne	6,656 Ingots	112,000 lbs.
Hamburg—Scotia	7,787 "	134,400 "
Matte:		
Liverpool—Templemore		241,303 "

This is a total of 586 long tons of copper and 119 tons of matte from New York, and of 110 tons of copper and 108 tons of matte from Baltimore; making in all 696 tons of copper and 227 tons of matte exported for the week.

Tin.—The market is somewhat easier, the pressure to realize having been more pronounced, and several lots changed hands at 13·70 for December and 13·65 for January, at which there remain sellers. The supplies from the East continue to be quite plentiful, and while they do, an improvement is not very likely to set in, unless speculation should lend a helping hand, which, however, is just now conspicuous by its absence.

The London market, which closed last week at £61 10s., is now quoted at £61 2s. 6d. for spot, and £61 12s. 6d. for three months prompt.

Lead has been more or less neglected, and the market is practically unchanged from what we reported it to be last week, 3.20c.

The market abroad is steady and the quotation remains unchanged at £11 6s. 3d. for Spanish, and £11 8s. 9d. for English.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is unsettled and very dull. Common lead is easily obtainable at 2·90; argentiferous at 2·92½. The demand continues exceedingly light. Buyers seem to have little faith in future values, although quite a number are willing to concede that prices are pretty low.

Spelter.—As the result of floods which have again visited the producing districts, the market has stiffened somewhat, but this is expressed only in the reluctance on the part of producers to meet present prices, but not responded to by consumers, who are unwilling to buy at the higher figures, as was the case also at the lower ones ruling about a week ago. Not that values are considered too high, but business both in the galvanizing and brass lines is so dull that the necessary encouragement is lacking. The foreign market is unchanged at £14 12s. 6d.

Antimony is quiet and unchanged; Cookson's, 7¾c.; U. S. Star, 7¼c.; Hallett's, 7c.; Japanese, 6¼c.

Nickel.—We continue to quote 34@37c. per lb, New York, on a somewhat inactive market. London quotations are firm at 13@15d. per lb.

Quicksilver.—The quotations are unchanged at $40 per flask, New York. London prices are £7 7s. 6d. per flask, with £7 3s. 9d.@£7 5s. quoted from second hands.

Imports and Exports of Metals.—Imports of metals into this port for the week ending December 19th, as reported by the New York Metal Exchange, were as follows: 39,781 boxes and 125 tons tin and black plates, 71 tons ferro-manganese, 215 tons spiegeleisen, and 214 tons manganese ore from the United Kingdom; 538 tons spiegeleisen and 40 tons Banka tin from Holland; 1,270 tons spiegeleisen from Antwerp; 2,000 tons iron pyrites from Pilley's Island; 250 tons tin from Singapore; 8 tons scrap brass from St. Johns.

Exports of metals from this port for the week were: 13 tons tin scrap to Amsterdam; 20 tons sulphate of copper to Mexico; 120 tons sulphate of copper, and 20 tons nickel to Genoa: 55 tons tin scrap to Antwerp.

Arrivals at the port of Baltimore for the week ending December 20th, as reported by the New York Metal Exchange, were as follows: 11,547 tons iron ore from Cuba, 123 tons ferro-manganese and 726 boxes tin plates from Liverpool; 200 tons pig iron from Hamburg.

Arrivals at Philadelphia for the week ending December 20th were: 7,924 tons iron ore from Spain; 2,950 tons iron ore from Cuba; 55 tons of tin from London.

Exports from Baltimore for the week ending December 26th are reported by our special correspondent as follows: 520 reels, 29,640 lbs. wire; 1,084 slabs, 44,839 lbs. spelter.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Dec. 27.

Heavy Chemicals.—We must continue to report a quiet chemical market. A holiday rest characterizes the trade and no change is looked for until after the New Year. Caustic soda continues quiet but firm. Alkali and carbonated ash have been in light demand at unchanged prices. Bleaching powder is in moderate request for future delivery. We quote: Caustic soda, 2·25@2·37½c. for spot, according to test; Carbonated soda ash, 48%, is ·90@1c., according to quantities and deliveries. Alkali is ·87½@1·05c., according to test and package. Bleaching powder, $1.75@$2. Sal soda, 65@70c.

Acids.—The bulk of the business doing in acids is for future delivery at unchanged prices. The spot demand is light. Our quotations per 100 lbs, in New York and vicinity, in lots of 50 carboys or over are as follows: Acetic acids (in barrels), $1.40@$1.70. Muriatic acid, 18°, 75@80c.; 20°, 80@90c. Nitric acid, 36° $3.50@$4; 40°, $4@$4.50; 42°, $4.75@$4.25. Oxalic acid, $7.10@$7.60. Mixed acids, according to mixture. Sulphuric acid, 66°, 75@85c.; chamber acid, $6.50@

$7.25 per ton at factory. Blue vitriol is in demand, with sales at $3.90@$4.10 according to size of order.

Brimstone.—We quote for shipments, best unmixed seconds, $15.25@$15.50 Thirds are 25@50c. less. Spot or nearby is $16.50 for seconds.

Fertilizing Chemicals.—There is little of interest doing in the fertilizer market just now. Prices show no change of importance. Quotations are as follows: Sulphate of ammonia, gas liquor, $2.50@$2.55; bone, $2.40@$2.50. Dried blood, high grade, $1.85@$1.95; low grade, $1.60@$1.70 per unit. Azotine, $1.80@$1.90. Concentrated phosphate (30% available phosphoric acid), 70@71½c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 57c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 90@92c. per unit. Acidulated fish scrap, $12, and dried scrap with few or no sales, nominally $21 f. o. b. fish factory. Tankage, high grade, $19@$20; low grade, $18@$19. Bone tankage, $21; ground bone, $19@$20. Bone meal, $21 @$22.50.

In lots of 50 tons on contracts we quote, per 100 lbs.: Double manure salts, 48-53% (basis of 48%): New York, Boston and Montreal, $1.10; Philadelphia and Norfolk, $1.12½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.15. Sulphate of potash, 90%, and minimum, 96% respectively (basis of 90%): New York, Boston and Montreal, $2.08@ $2.10; Philadelphia and Norfolk, $2.10½, Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.13.

Muriate of Potash.--Quotations for lots of 50 tons are as follows: 80-85% and minimum 95%, respectively (basis of 80%): New York, Boston and Montreal, $1.78, Philadelphia and Norfolk, $81.80½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.83.

Kainit.--Prices for kainit (minimum 23%) are as follows for invoice and actual weights respectively New York, Boston and Philadalphia, $8.80; Norfolk, $9.15; Charleston, Savannah, Wilmington, N. C., and New Orleans, $9.55.

Nitrate of Soda.--Quotations are: Spot, $1.75; shipments, $.72½@1.80, according to position.

Liverpool. Dec. 18.

(Special Correspondence of Joseph P. Brunner & Co.)

In heavy chemicals there is not much doing, but prices are firm. The Castner-Kellner Company having secured land at Weston Point, is expected to make a start very shortly, with the erection of works.

Soda ash is inactive, but without change in values, the nearest spot range for tierces being about: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 10s.; ammonia ash, 48%, £3 7s. 6d.@£3 12s. 6d.; 58%, £3 12s. 6d. @£3 17s. 6d., all per ton, net cash. Bags, 5s. per ton under prices for tierces. Soda crystals move but slowly and are quoted at £2 7s. 6d.@£2 10 s. per ton, less 5%, for barrels and 7s. less for bags.

Caustic soda is very scarce for prompt delivery. We quote spot range as follows: 60%, £6 5s.@£6 12s. 6d.; 70%, £7 5s.@£7 12s. 6d.; 74%, £8 5s.@£8 10s.; 76%, £9 5s.@£9 10s., all per ton, net cash.

Bleaching powder is firm at £7 5s.@£7 10s. per ton, net cash for hardwood packages, according to destination. Chlorate of potash is rather neglected, and although 4½d. is still maker's quotation for any position, second-hand parcels are offered for prompt delivery at 4⅜d.

Bicarb. soda is quiet, but steady, at £6 15s. per ton, less 2½% for the finest quality in one cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia is slow of sale at about £9@ £9 5s. per ton, less 2½% for good gray, 24% and 25%, in double bags f. o. b. here, according to quality. Nitrate of soda is firmer on the spot, and £8@£8 2s. 6d. per ton, less 2½%, is now quoted for double bags f. o. b. here, according to quality and quantity.

Carb. ammonia lump, 3½d. per lb.; powdered, 3¾d. per lb., less 2½%.

MINING STOCKS.

Complete quotations will be found on pages 602 and 603 of mining stocks listed and dealt in at:

New York.	Aspen, Colo.	St. Louis.
Boston.	Colorado Springs.	Paris, France.
Philadelphia.	Duluth, Minn.	Mexico.
Baltimore.	Helena, Mont.	Shanghai, China.
Pittsburg.	Salt Lake, Utah.	Valparaiso, Chile.
Denver, Colo.	San Francisco.	London, England.

NEW YORK, Friday Evening, Dec. 27.

The usual holiday calm prevailed in the mining stock market during the past week. There was no especial demand for any particular stock or group of stocks, though inquiries for some of the Cripple Creek stocks, as for instance Portland, have been more numerous.

The Consolidated Stock and Petroleum Exchange has decided to increase its list. The Committee on Mining Securities this week reported favorably on the application of the Golden Fleece Mining and Milling Company. The following information concerning the property has been furnished by the president: The company was incorporated on June 14th, 1894, under the laws of Iowa, for the purpose of engaging in a mining and milling business. The capital stock is $600,000, divided into 600,000 shares of a par value of $1 each.

The stock is not assessable and was issued full paid. The location of the principle office is Denver, Colo., where is also located the transfer office, the transfer agent being the International Trust Company, with whom all the certificates of stock are registered. The officers are: Biddle Reeves, president; George W. Pierce, secretary and treasurer and W. A. Akers, Manager. The directors are Biddle Reeves, D. K. Lee, H. W. Hobson, E. A Kent and George W. Pierce. The property of the company which is located in Hinsdale, County, Colo., consists of the Golden Fleece, 10 acres; Enterprize, 10 acres; Alpha, 10 acres; and Omega, also 10 acres.

Gold and silver are produced. The property is worked principally by tunnels and a hoisting plant for 600 ft. in depth has been placed in tunnel No. 3. The average value of the ore, based on the average received from smelter returns, is $450 per ton. The ore is refractory and is smelted. The present company has paid to date 38 dividends, aggregating $394,-000. The total profits before and since the present organization amount to $657,000. The present company has a surplus of $60,000 in cash. The stock has been listed on the Consolidated Exchange, but it will not be called for some weeks to come, the officers of the company having made a request to that effect.

There was very little done in the Comstocks. Comstock Tunnel shows sales of 1,400 shares at 6@7c. Consolidated California & Virginia was very quiet, only 300 shares being sold at $2.05@$2.30. Other sales were as follows: 200 shares of Best & Belcher at 82c.; 200 shares of Hale & Norcross at 89c.; 200 shares of Mexican at 60c.; 100 shares of Savage at 35c.; 200 shares of Sierra Nevada at 55c.

Of the Colorado stocks Leadville Consolidated was stationary at 12c., with sales of 1,100 shares. Little Chief was very quiet, only 300 shares being sold at 20c. Other sales were: 500 shares of Chrysolite at 24c., and 400 shares of Small Hopes at $1.

The only California stock traded in was Standard Consolidated, of which 200 shares were sold at $1.75 There was a sale of 100 shares of Homestake at $27 and 200 shares of Horn Silver at $2.25. Of Phœnix 300 shares were sold at 9c.

Boston. Dec. 26.

(From Our Special Correspondent.)

The war scare struck the market for copper stocks the past week, and prices went down with a rush, many of them to the lowest prices for the year. The recovery was sharp, and stocks sold to-day well up to the point from which they started on the downward track. Boston & Montana in the flurry sold down to $57; to-day it touched $70¼, sold off to $67¼, and closed at $68¾. Butte & Boston went off to $8½, recovered to $13¾, and closed to-day at $12½.

Calumet & Hecla dropped from $305 to $290, recovering to $296, and closed at $295. There was very little of it thrown on the market. Quincy went down to $110 and recovered to $120. Tamarack lost $6 to $115, but to-day recovered and gained $1, selling at $122. The scrip sold at $65. Osceola declined from $25 to $20, and regained $4½ to-day, selling at $24½. Kearsage touched $7 in the rush to sell, which is about the lowest price for the year. It recovered to $12 and closed at $11¼@ $11¾. Franklin sold off to $9, but recovered to $11½. There was not much pressure to sell it. Atlantic declined to $11 and recovered to $15. Tamarack, Jr., sold at $11, recovered to $14½ and closed at $13½. Wolverine touched $5, in the flurry, but advanced later to $6. Arnold sold at $1 to $1⅛.

The gold stocks were affected by the decline in the general market. Merced sold at $24 and recovered to $33. Gold Coins Mining Company touched 90c., selling later at $1.05. Santa Ysabel sold at $7, with later sales at $10. Boston & Cripple Creek was steady at 35@40c.

Old Dominion Copper Company opened with sales at $14, and advanced to $17¼.

The market closes with a slight tendency to lower prices.

Cleveland. Dec. 26.

(From Our Special Correspondent.)

The financial panic during the past week has forced the sale of a few iron ore properties at sacrifice prices. Some Republic stock changed hands at $11.50, but this does not represent the actual market under normal conditions. There have been other transactions in this stock at $13 during the past few days, and one block of considerable size, which had been offered at that price was withdrawn from the market.

Inquires continue for the Lake Superior Consolidated, and an offer of $20 is to-day reported. Recent actual transactions have been slightly below that figure. Holders of iron ore stocks generally attach greater values to their securities than current quotations, and the direction of the present market is slowly but steadily upward in spite of close money in the East.

Following are to-day's prices:

PRICES OF IRON MINING STOCKS AT CLEVELAND.

Name of Company.	Par val.	Dec. 26. Bid.	Ask.
Aurora	$25	.....	$8
Chandler	25	$37½	41
Cleveland-Cliffs Iron Co	100	40	42
Jackson Iron Co	25	....	70
Lake Superior Iron Co	25	30	32
Lake Superior Consolidated	100	20	.....
Minnesota Iron Co	100	70	.....
Pittsburg & Lake Angeline	25	75	.....
Republic Iron Co	25	13	14

Colorado Springs, Colo. Dec. 21.

(From Our Special Correspondent.)

The President's message, or rather, the flurry in the stock exchange of the East, combined with the usual holiday dullness, favored the bears this week, and a decline in many of the stocks took place toward the end of the week. I am informed by several brokers here that some of the Eastern holders sent selling orders, and in addition many of the small local holders needed ready cash for the holidays, and, being satisfied with the profits already earned, sold out. All things considered, prices held up pretty well.

It is believed here that the flurry is only temporary and there is no need of speculating upon the probabilities of a war. By the time this reaches you, the East will have recovered from Friday's fright and we shall again be doing as much business as there is ever done during the holiday season.

The tables printed elsewhere in the "Engineering and Mining Journal" will tell its readers the story of the past week here. Our two leading exchanges are too securely founded and too well managed to leave any doubt as to their ability to do well so long as Cripple Creek endures.

The Colorado Springs Mining Stock Association reports transactions for the week as follows: Total sales of listed stocks, 1 069,460, having a cash value of $136,-391; total sales of unlisted stocks, 2,069,971. On the Board of Trade, 1,896,200 shares, of a cash value of $103,763, were sold. The Consolidated Exchange reports a fair business.

BY TELEGRAPH.

Messrs. Gardner & Co. wire us the closing quotations of the Colorado Springs Mining Stock Exchange for the week ending December 26th as follows:

Name of Company.	20	21	23	24	25*	26
Alamo	.07	.07½	.08	.08	.....	(9½
Anaconda	.61	.61	.65	.65	.....	.70
Argentum-Juniata	.39	.41	.40	.40	.....	.4[illegible]
Blue Bell	.11	.11	.10	.10	.	.11½
Cripple Creek Con	.18	.18½	.18	.18		.20¾
Isabella	.44	.45	.46	.46	.....	.50
Mollie Gibson	.35	.35	.37	.37	.....	.38
Mount Rosa	.16	.15	.17	.17	.....	.18
Pharmacist	.12½	.12	.17	.17	.....	.14½
Portland	1.60	1.60	1.74	1.74	.....	1.85
Silver State	.2¾	.02½	.03	.03	.....	.03¾
Summit	.25		.25	.25	....	.25
Union	.29	.32	.31½	.32½	.....	.35
Work	.18	15	.18	.18	.. ...	.18½

*Holiday.

Cripple Creek, Colo. Dec. 21.

(From an Occasional Correspondent.)

The week's business has been the lightest since the opening week of the exchange. Sales were as follows: On Monday, 209,110 shares, value $14,091.65; Tuesday, 175,700 shares, value $12,067.85; Wednesday, 139,000 shares, value $7,421.75; Thursday, 139,-000 shares, value $6,808.60; Friday, 160,600 shares, value $10,521.75; Saturday, 60,000 shares, value $5,660.50; total, 883,410 shares, value $56,878.10.

The market has been decidedly slumpy. Isabella sold on Friday at 45c., but closed strong on Saturday at 43½c. offered. Anaconda dropped from 69c. to 63c. Banker's was a little weak; in fact, the prices have, as a rule, fallen partially on account of the panic in New York and partially due to the holidays, small holders wanting to realize. Ironclad stock has advanced and Union has been about stationary.

The brokers report heavy buying orders at the present low prices, Anaconda being a favorite, but that stock cannot be purchased at the present quotations, only in small lots.

Salt Lake City, Utah. Dec. 21.

(Special Report of James A, Pollock.)

Despite the near approach of the holidays the local mining stock market was active during the past week, the dealings being especially heavy in several of the old time favorites, which are now coming to the front with rapid strides.

One of the most important developments, in a mining way, of the week was the agreement between the Alliance and the Silver King for a friendly survey of each other's properties. There has been much talk of late regarding probable trouble between the two companies. No developments occurred in the Alliance underground workings, and the absence of a change for the better is weakening the stock somewhat, although there are few stockholders who care to sell. Ajax was also inactive. Good shipments of fair grade ore continue from the property. Gas is doing nothing. Anchor continues in the same old lines. A limited amount of the stock came out at prices below the $3 mark, but takers were not numerous. The stock should be a good buy at even advanced quotations.

In the dispute between the stockholders of the Bogan the minority stockholders won a signal victory in the courts, gaining every point in contest. The court declared that the administration of affairs by the Bogans had been dishonest, and the stock should not have been assessed. As was predicted would be the case, the Bullion-Beck makes its stockholders a Christmas present in the shape of a $25,000 dividend, payable the 20th. This swells the total dividends for the company to $1,050,000 and for the year $450,000. The reports from the properties of the company are of an encouraging nature.

With its usual regularity, the Centennial Eureka made payment of a double dividend of $1 per share on the 16th, and another special double of the same amount seems assured for the first of the year. The payment on Monday swelled the company's total to $1,470,000. Conservative estimates of the ore resources of the Centennial Eureka show that the present record can be maintained for years to come. Comstock and Crescent knew no business for the week.

The incorporation of the Gold Dust group was followed by the placing of a limited number of shares from the treasury upon the market at 50c. per share. Orders for the stock are being received in large numbers and it is evident that the stock will be over subscribed. The properties are located right in the heart of the mineralized region of the Camp Floyd District.

San Francisco. Dec. 21.

(From Our Special Correspondent.)

On Monday the stock market opened very quietly; prices were weak except in the case of Alpha, which had quite a little climb on the strength of reports of a new ore found which promises well. On the following day there was an improvement all around, except in Occidental, which declined on the announcement of a 15 cent accessment.

The market closed quietly, with but little variation in prices, which were a little stronger than in the middle of the week. To-day Consolidated California & Virginia is quoted $2.05@$2.10; Ophir, $1.35@$1.40; Mexican, 59@60c.; Gould & Curry, 39@40c.; Savage, 31@33c.

Bodie Consolidated shows a fair number of transactions, and closes at 40@42c.; Bulwer, 12@13c; Mono, 6@7c

The old proposition to start a gold mining exchange to deal exclusively in the stocks of gold mining companies, has been revived, but with little apparent probability of success. A reorganization of the existing exchange would have more to go on; but the question is whether the gold mining companies could be induced to list their stocks.

The Occidental Consolidated Mining Company has levied an assessment of 15c per share.

The Teresa Mining Company of Sinaloa, Mexico, has levied an assessment of 5c. per share, delinquent December 17th.

Franklin Leonard, President of the Comstock Tunnel Company, of New York, arrived in San Francisco from Virginia City, Monday. Mr. Leonard stayed here two days and then returned to the Comstock, where he says he will stay all the winter.

London. Dec. 14.

(From Our Special Correspondent).

There has been hardly any business done in the mining market during the past week and the time has been passed by those on the floor of the Exchange in the usual way when things are slack, viz., in football matches with each other's plug hats, and by practical jokes of all sorts. Quotations have not fluctuated much, but the tendency has been to sag all round. In the South African market, British South Africas have been the only stock to receive attention. Rumors have been circulated to the effect that Mr. Rhodes is making a move toward acquiring the Beira Railway, and at the same time a strip of Portuguese territory, which will afford an approach to Charterland from the east coast. As such a move would be greatly in favor of the company, the interest on the part of the public has been attracted to the market in its shares.

In the West Australian market things are pretty much at a standstill, and the American market has been comparatively lifeless, and the only feature of interest is that the shares in some of the Cripple Creek properties are being bought by French speculators. In the general Australian market there has been a bear attack on Broken Hill Proprietary. For some weeks the price of this stock has been rising gradually from £2, the level at which it had stood for months, to nearly £3, chiefly on the circulation of reports relative to the solution of the sulphide problem. The bears have evidently considered the present a suitable opportunity for their special genius, and their efforts have been partially successful. Their selling might have had more serious effects if it had not not been for the fact that Australian buyers came forward freely and absorbed all offers.

The report of the Holcomb Valley Company, California, which has just been published, shows a continuance of the unsatisfactory state of affairs for which this company has already become noted. A succession of managers have muddled away the money of the company, and the last one appointed does not seem to be any more capable than his predecessors. Without doubt, the property of the company consists of large quantities of gravel containing upward of 20c. per cubic yard, but during the years that have been spent, only a few thousand cubic yards have been treated. The directors have now come once more to the end of their money, and they are proposing to increase the capital by £10,000.

I have mentioned several times lately that American mines are receiving much more attention in London, and that they are likely to do so still more as time goes on. During the past two months there have been hardly any new African or Australian mines floated here. If we reckon only those which are advertised publicly, there have been more American mines brought out here than African or Australian; but if notice is taken of those floated privately as well, the preponderance is much greater. Besides the American properties are mostly mines, and not claims or prospects. A mine which has recently been floated privately is the "Lawlers," which is situated at Quartzville, Linn Co., Oregon. This property contains large amounts of free milling gold ore, averaging $13 per ton, and as the consulting engineer and the mine manager are capable men, the mine ought to be made to pay. The expenditure of capital is being controlled economically by the consulting engineer, Mr. A. L. Pearce, and no money is being wasted on promoters, nor will the stock be made a gambling counter on the Stock Exchange.

Paris. Dec. 15.

(From Our Special Correspondent.)

Now that we have passed the settlements safely and a panic is no longer feared, a recovery to some degree might be expected, but it does not come. The South African gold shares, which are still the dominant interest in the stock market, seem to have settled down permanently to a lower level, with no apparent chance of improvement to come. The dividend-paying companies seem to have suffered almost as much as those whose value is yet to be proved.

All the market has been quiet and heavy and prices have sympathized. The sales have not been very large and in all classes of stocks the quotations seem to have settled down. The copper shares have lost the little improvement I noted last week, and Rio Tintos show a loss of 22·50 fr. on the share.

Meantime the farce at Constantinople goes on, and no one can give any idea as to when or how it will end. A prophet is in demand; but so many prophecies have been discredited of late that one hesitates to predict.

I do not yet feel able to estimate the loss which has fallen upon investors in the last few weeks from the fall in nominal value of their securities. Of course, the actual income to be derived from gold mining stocks has not diminished, and many who bought a year or more ago can still show a satisfactory balance; those who bought later have suffered, of course. After all the heaviest losses have fallen on owners of Turkish and Spanish bonds and a few other foreign securities which were formerly favorites among our people.

M. Alfred Neymarck, former president of the Statistical Society, makes in "Le Rentier" a very curious inquiry into the reduction of incomes in France. He shows that in 1891 the incomes derived from public securities and subject to the tax of 4% yearly, amounted in round figures to 1,778,000,000 fr., and the tax was 70,000,000 fr. In 1894 the incomes amounted to 1,665,000,000 fr. and the tax to 66,000,000 fr. Here we have a loss in three years of 123,000,000 fr., representing at 4% a capital of 3 075,000,000 fr. But this is not all; incomes from French rentes and foreign government bonds are not subject to the tax. Now the conversion of the 4½% into 3½% rentes two years ago alone caused a loss to investors of 68,000,000 fr. yearly, and similar operations on the part of foreign governments must have been nearly equal in amount. The total yearly loss to investors in three years must have been fully 250,000,000 fr., representing at 4%, as above, a capital of 6,250,000,000 fr.

Again, the amount of money to be raised by tax for public purposes increased during the three years 200,000,000 fr. Putting the two together we have a total loss in incomes of 450,000,000 fr., nearly half a milliard. The greater part of this loss has fallen on people of moderate fortune, who as a rule are hardly in a position to turn back and invest their money in business to increase their gains, even if the opportunity presented itself; and, as we all know, openings for business are harder to find each year. In a very great number of cases the change has wiped out the surplus, and people can no longer save; they must spend all their incomes.

This statement is not contradicted by the investment of great sums in mining stocks, as some might think. The fact is that incomes from the old and well known securities have so decreased that those who own some money have been ready to accept almost any chance of increasing their incomes, even if it was accompanied by some risk.

We must remember also that while incomes have decreased, the cost of maintaining oneself in a certain class has greatly increased. It is perhaps a mistake to say that the cost of living has increased; certainly, the bare necessities of life cost less than they did, as M. Leroy-Beaulieu showed in a very interesting investigation not long ago. It is rather the standard of living which has risen, and a family of a certain standing wants and buys a greater variety of things than it did 40, or even 20, years ago. It is one of the penalties we pay for the greater conveniences and the greater complexity of our modern civilization.

Is it worth the cost? I do not know. I am a man of to-day, and would not be willing to live as my father and my grandfather did; but I do not like to picture to myself what our grandsons will need—or think they need, which is the same. AZOTE.

MEETINGS.

Bullion Beck Mining Company, of Utah, dividend amounting to $25,000, paid December 20th.

Centennial Eureka Mining Company, of Utah, dividend of $1.00 per share ($30,000), paid December 15th.

Chapin Mining Company, special meeting at the office in Cleveland, O., January 9th, to vote on a proposed increase of the capital stock.

Enterprise Mining and Land Company, annual meeting at the office, No. 113 East Kiowa Street, Colorado Springs, Colo., January 4th, 1896, at 3 p. m.

Golden Eagle Mining and Milling Company, annual meeting, at the office of Mr. L. E. Sherman, Exchange Bank Block, Colorado Springs, Colo., January 15th, 1896, at 4 p. m.

Hilda Gold Mining and Milling Company, of Colorado, regular stockholders' meeting, at the office 1519 Stout street, Denver, January 7th, at 4 p. m.

Smuggler Union Mining Company, dividend of 50c. per share ($500,000), payable January 2d, 1896.

DIVIDENDS.

Alaska-Treadwell Mining Company, bonus dividend of 50c. per share, paid December 23d.

Mercur Gold Mining and Milling Company, annual meeting, at the general office, Rooms 406 and 407, McCormick Building, Salt Lake City, Utah, January 8th, at 2 p. m.

Uncle Sam Mining and Milling Company, annual meeting, at the office, 114 Pike's Peak Ave., Colorado Springs, Colo., January 2d, at 2 p. m.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.	Sale.	Amt.
Anna	S. D.	4	Dec. 10	Dec. 30	.005
Atlas	"	9	" 7	" 26	.001
Bay State	Cal.	29	" 17	Jan. 6	.02
Best & Belcher	Nev.	59	" 9	Dec. 30	.25
Bullion	"	46	" 9	" 30	.10
Bullion Con.	Cal.	6	" 24	Jan. 27	.10
Bulwer Con.	Cal	11	" 4	Dec. 31	.05
Butte & Bost.	Mont.		Jan. 10	Feb. 3	.00¾
Chollar	Nev.	41	D " 3	Jan. 7	.25
Confidence	Nev.	26	" 18	" 8	.30
Con. Cal. & Va.	"	5	" 28	" 16	.25
Con. New York	"	14	Jan. 15	Feb. 6	.05
Emmett	S. D.	10	" 13	Dec. 31	.02
Gold Bar Con.	Cal.	2	Dec. 21	Jan. 16	.03
Gold Valley	"	2	" 16	" 2	.10
Gould & Curry	"	77	" 10	Dec. 30	.10
Granite Hill	"	12	" 4	Jan. 8	.03
Hale & Norcross	Nev.	108	Jan. 15	Feb. 7	.15
Hite	Cal.	2	" 20	" 10	.10
Jamison	"	7	Dec. 16	Jan. 6	.02
Jones	Utah.		" 14	" 11	.00¼
Marguerite	Cal.	1	" 2	" 5	.10
Mexican	Nev.	53	" 23	" 14	.25
Montreal	Utah.		" 17	" 2	.00¼
New Basil con	Cal.	29	Jan. 6	Feb. 19	.05
No. Banner Con.	"	37	" 9	Dec. 30	.03
Occidental Con.	Nev.	21	" 20	Feb. 19	.15
Ophir	Nev.	67	" 9	Dec. 30	.25
Overman	"	74	Jan. 6	Jan. 27	.10
Siskiyou Con.	Cal.	10	Dec. 19	" 10	.01
Superior	"	4	" 9	" 30	.05
Teresa	Mex.	16	" 17	" 4	.05
Tetro	U. an.	2	" 21	Feb. 1	.01
Troy	"	8	" 21	Jan. 11	.20
Yellow Jacket	Nev.	60	" 17	" 22	.25

DIVIDENDS PAID BY MINING COMPANIES, NOVEMBER AND YEAR 1895.

NAME OF COMPANY.	Location.	Paid in November.	Paid in since Jan. 1.
Adams	Colo.		$6,000
Ætna Con.	Cal.		10,000
Am. Dev. & Mg. Co.	Mont.		24,340
Alaska-Mexican	Alaska.		51,000
Alaska-Treadwell	"		225,000
Amethyst	Colo.		36,000
Argentum-Juniata	"		156 000
Bald Butte	Mont.		12,500
Bangkok-Cora Belle	Colo.	3,000	56,000
Belden, F. E. Mica	N. H.	4,000	44,000
Boston & Montana	Mont.	750,000	1,050,000
Bullion-Beck & Champion	Utah.		325,000
Calumet & Hecla	Mich.		1,500,000
Centennial-Eureka	Utah.	60,000	390,000
Champion	Cal.		27,200
Church	"	5,000	5,000
Con. Cal & Va	Nev.		162,000
Copper Queen Con.	Ariz.		150,000
Coptis	Nev		1,000
De Lamar	Idaho.		540,000
Elkhorn	Mont.		50,000
Forepaugh	Colo.		16,600
Gold & Globe	"		11,250
Golden Fleece	"	20,000	172,000
Hecla Con.	Mont.		115,000
Highland	So. Dak.	25,000	25,000
Homestake	" "	31,250	312,500
Hope of St. Louis	Mont.		10,000
Horn Silver	Utah		50,000
Iron Mountain	Mont	10,000	100,000
Jackson	Cal.		2,000
Kennedy	"		184,000
Le Roi	B. C.		25,000
Mayflower Gravel	Cal		48,000
Mercur	Utah		200,000
Mollie Gibson	Colo.		50,000
Montana, Ltd.	Mont.		102,300
Mont. Ore Purchasing Co.	"	40,000	160,000
Moose	Colo.	6,000	66,000
Morning Star Drift	Cal.		153,600
Moulton	Mont.		30,000
Mt. Rosa	Colo.		5,000
Napa Con. (Quicksilver)	Cal		90,000
Nugget	Colo.		5,000
Osceola Con.	Mich.		100,000
Portland	Colo.	60,000	660,000
Quincy	Mich		600,000
Silver King	Utah.	25,000	212,500
Smuggler	Colo		350,000
St. Joseph (Lead)	Mo		37,500
Standard	Cal.		20,000
Tamarack	Mich.		200,000
Temonj	Colo		10,000
Tom Boy	"		200,000
Union	"		12,500
Utah	Utah.	2,000	17,000
Victor	Colo.	20,000	220,000
Victor L. & M. Co.	"		9,000
War Eagle	B. C.		132,500
W. Y. O. D.	Cal.		24,000
Totals		$1,061,000	$9,558,690

Readers of the "Engineering and Mining Journal" will confer a favor on the publishers if they will notify the "Journal" of any errors or omissions in the above table.

STOCK QUOTATIONS.

COLORADO SPRINGS COLO.*

Name of Company.‡	Par val	Dec. 17 H.	Dec. 17 L.	Dec. 18. H.	Dec. 18. L.	Dec. 19. H.	Dec. 19. L.	Dec 20. H.	Dec 20. L.	Dec. 21. H.	Dec. 21. L.	Dec. 23. H.	Dec. 23. L.	Sales.
Alamo	$1	.07¼	.07	.07⅝	.7	.9	.07⅝	.07⅛	.7	.07½		.07⅜	.7⅝	24,600
Anaconda	5	.70	.68½	.69	.6⅝	.69½	.68	.66⅝		.60½	.54	.66½	.64½	12,155
Argentum J	2	.42		.45		.45	.43	.44	.38½	.40	.38	.40	.9	21,800
Bob Lee	1	.03⅜	.02¼	.03		.03	.02⅜	.03	.02⅜	.02¾		.3	.12½	9,000
Cr. & C. C.	1	.07	.06⅜	.07¼	.06¼	.06⅜		.07	.06	.06⅜	.5⅜	.07	.06½	4,500
Cripple C.C.	1	.21¼	.20⅜	.21¼	.21½	.21¼	21	.20⅜	.19½	.18¼	.17⅜	.9½	.19¼	27,0 0
Cr.Creek Ex	1					.17¼						.17½		1,000
Croesus	1	.02⅜		.02¼				.02⅜				.2⅝	.2¼	2,0 0
Fanny R	1	.10⅜	.10⅛	.10⅝	.10⅝	.10	.06¼	.08¼	.07¼	.08	.07	.08¾	.8½	28,035
Favorite	1			.13						.12		13	.12	2,500
Franklin	1	.02¾	.02⅜	.2⅜		.02⅝				.02¼	.01½	.02	.01⅞	61 0
Gold Fleece	1	1.30		1.30	1.29			1.28	1.27½	1.27½	1.25	1.25½	1.25	3,10
Gold & Gl	1					.25						.26	2	1,000
Good Hope	1			.02¼								.02½		500
Ida May	1	.17⅛		.17⅜								.19	.14	3,000
Isabella	1	.50	.48½	.48½	.48	.48¾	.48½	.48⅛		.44	.39⅝	.46¼	.46⅜	33, 00
Marion	1					.02	.01¾					.01⅝	.01⅞	7,500
Mollie Gib	5	.35					.36		.35	.34½		.38	.37	1,250
Mt. Rosa	1	.16¾	.16½	.16¾	.16½	.19	.17½	.19	.17			.17	.16¾	33,670
Matao	1	.29	.28	.28⅜	.27¾	.28	.27	.25				.25	.24	8,70
Oriole	1	.05⅛	.05⅜	.05⅛		.05⅛	.05⅜	.0⅛	.05⅜			.05	.04½	45,000
Pharmacist	1	.14		.13⅜	.13¾	.13⅞	.13⅜	.13⅜	.12¾	.11⅛	.11	.13	.12½	21,9 0
Portland	1	1.86	1.84	1.82½	1.80	1.80		1 60				1 74	1.73	6,050
Rubicon	1											.25	.24	
Specimen	1			.16¼								.14½	.12½	2, 00
Summit	1			.24¾		.24¾	.24¾	.24⅜				.24⅜	.22	14,0 0
Union	1	.34⅜	.34½	.35	.34⅛	.36	.35	.32⅝	.29	.31¼	.27	.32½	.32	83,6 0
Work	1	.19¾	.18⅜	.19	.17	.19¼	.19	.19¼	.18¼			.17¾	.17	52,8 0

* Official quotations Colorado Springs Mining Stock Association ‡ All the companies are located in Colorado. Total sales: listed, 511,240.

COLORADO SPRINGS, COLO.*

Name of Company.‡	Par val	Dec. 17. B.	Dec. 17. A.	Dec 18. B.	Dec 18. A.	Dec. 19. B.	Dec. 19. A.	Dec. 20. B.	Dec. 20. A.	Dec. 21. B.	Dec. 21. A.	Dec. 23. B.	Dec. 23. A.	Sales
Ajax	$1	.08⅜	.11⅝			.10		10	.12			.08	.12	12,000
Alamo	1	07	.07¾	.07¾	.07⅝	.08¼	.08½		.08	.07⅜	.07⅝	.08	.08½	36,500
Americ'n C	1	.03⅜	.04	.03½	.4	.03¾	.04	.03¾	.04	.03⅜	.04⅜	.03½	.03⅝	16, 0
Anaconda	5	.68½	.70	.68	.68¾	.68	.70	.69	.69¼	.60	.62	.64	.66	39,000
Anchoria-L	1		3.08	2 00	3.00	2 90	3.00	2.50	3.00		3 00	2 96	2 99	2,000
Aola	1	.03½	.03⅞	.03⅝	.03⅞	.03¼	.04	.03⅞	.04	.03½	.03⅞	.03¾	.04	8,000
Arg'ntumJ	2	.39¼	.40	.42¾	.44	.44½	.45	.43¾	.44½	.37½	.44	.46½	.48	1,800
Bankers	1	.19¾	.19⅝	.19	.19¾	.19⅝	.20	.19⅝	.2	.19¼	.20	.18⅝	.20	15,000
Ben Hur	1	.08⅞	.09	.08⅜	.09	.09		.09¼	.09¼	.07¾	.08¼	.08⅜		13,000
Blue Bell	1	.10⅜	13	.11½	.11¾	.11	.12	10	.11½	.10⅜	.11	.10⅝	.12½	2,750
Bob Lee	1					.02¾	03	.03	.03¼	.02½	.02½	.02¾	.03	16,0 0
Buckhorn	1	.06¾	.07	.06¾	.06⅞	.07	.07⅛	.06⅞	.07¼	.06¾	.06¾	.06⅝	.07	30,000
Colfax	1	.04⅜	.04¾	.04⅜	.4⅜	.04¾	.05	.04⅝	.04¾			.04½		4,000
Colo.C.& M.	1	.07⅜	.07¼	.07⅜	.07¼	.07⅜	.07⅝	.07⅜	.07⅝	.06¾	.07	.07⅜	.07½	54,0 0
Columbine	1	.04	.05⅝	.04¼	.05	.04⅝	.04¾	.04¼		.03½	.05	.04¼	.04	4,000
Copper M	1	.02⅜	.02⅝	.02½	.02⅝	.02½	.02⅝	.0 ⅜	.02⅝	.02¼	.02⅝	.02¼	.02½	15,0 0
Cr. & C. C.	1	.16¾	.17	.06⅝	.06¾	.06¾	.07	.16⅝	.03⅜	.06⅜	.16¾	.06¾	.06⅞	11,000
C. C. Con.	1	.21¾	.21¾	.21¼	.21¾	.20⅜	.2	.20⅝	.2	.18	.18¼	.19⅜	.19⅝	11,0 0
Currency	1	.08	.10		.10	.08	.10	.08				.07½	.09½	2,000
Dante	1					.08¼	.10			.09½	.11	.09¾	.10⅝	
Des Moines	1			.07	.7¼	.08¼	.08¾	.08	.08¼		.08¾	.07⅝	.07¾	41,300
Enterprise	1		.26		.28	.20½	.26½	.24	.28	.16	.2⅜	.22	.25	
Fanny R	1	.10	.10⅝	.07⅜	.1	.08⅝	.08¾	.07⅝	.07⅜	.07⅜	.07¾	.08¼	.08⅝	68,500
Favorite	1	.12½		.12½				.12¾	.13⅜			.12		
Free Coin	1								.11¾			.08⅜	.15	
Garfield-Gr	1	.06⅜	.07	.07	.07¼	.07	.07⅜	.01¼	.01⅝	.07	.07⅜	.06⅝	.07	97,715
Gold. Age	1	.03¾	.04⅜		.04⅝	.03⅞		.03⅝	.04			.03¾	.03⅞	6,000
Gold & Gl	1		.2½	.25¼	.24⅝	.25	.2¾	.25	.20	.26	.25	.25⅛	.25¼	11,500
Gold King	1	.56		.56	.62½	.55			.65		.64	.57½	.64	
Gold Stand	1	.11¾	.12	.10⅝	.11	.11¾	.11⅝	.11¾	.09¾	.11¾	.10⅞	.11¾	.11⅝	1,500
Gould	1	.19½	.20¾	.20¼	.21	.21	.19⅞	.2⅛	.18⅜	.2	.18½	.19⅜	.19⅝	6,500
Grotto	1						.02¾	.02⅜	.02⅜	.02¼	.02¾	.03	.03¼	4,0 0
Humboldt	1	.03⅜		.03⅛	.03⅜		.4⅝		.04⅜	.03¾	.04⅛	.0⅜	.04⅜	54,000
Ida May	1	.15½		.10								.12		
Iron Clad	1	.07	.10	.06¾			.10		.10	.12		.1 ⅜		
Isabella	1	.48½	.49¼	.47¼	.48	.48½	.48¾	45		.41	.42	.46⅞	.47¼	12,300
do.stamp	1	.45⅜	.49½	.45¼	.47⅝	.45⅞	.48	.42⅝	.45			.43		500
Ivanhoe	1	.06	.10	.06¾		.06⅜	.10					.06		
Jack Pot	1	.12⅜	.13½	.12½	.13		.12⅞		.12⅜	.10	.12	.11¼	.12½	6,300
Jefferson	1	.18¼	.19⅜	.18¾	.18⅝	.16⅞	.17½	.17	.19	.15		.17⅜	.17¾	12,600
Kaffirs	1					.04	.04¼	.03¾	.04½			.04⅝	.04½	11,000
Keystone	1			.07¾	.08	.08	.08½	.08¼		.08	.07¾			3,500
Lottie Gib	1	.02⅜	.03	.02⅞	.04	.02⅞	.03	.02⅜	.03	.02	.03	.03	.03½	96,500
Maton	1	.28	.30	.25	.29¾	.25	.29		.3½	.2	.30	.24	.25½	1,000
Mineral R	1											.04½		
Mollie G	5	.35		.35		.33½	40	.35	.36½	.34		.30	.4	
Monarch	1		.08					.03¼	.01⅞	.05		.16	.7	
Mt. Rosa	1			.16½	.18			.18¾		.16	.20	.15½	.19	1,0 0
Mutual	1	.06¾	.07	.06¾	.07	.06		.06				.07		
Nugget	1		.14½	.14½	.14½	.13½		.13⅞		.14			.15	
Ophir	1	.09¼	.10	.09¾	.10⅝	.9⅝	.10	.09	.10			.10		10,500
OrphanBell	1	.12⅜	.14	.13	.13¾	.13	.14½	.13	.14	.12½	.13	.12½		
Pappoose	1	.06⅞	.07	.7	.07¼	.07¼	.07½	.06¾	.07	.06⅝	.07⅛	.06¾	.06⅞	72,000
Pharmacist	1	.14	.14⅜	.13	.14⅜	.13⅝	.15	.13¾		.11⅜	.13	.13		14,000
Portland	1	1.84½	1 85	1.78⅜	1.86		1.84	1.3	1.80	1.45¼	1.50	1.71	1.80	65
Ramona	1	.04½						.04¼	.05½	.05		.05¾	.5⅝	1,500
Reno	1	.07⅜	.08¼	.07⅛	.09	.08¼			.08	.07	.07¼	.07⅜	.08	16,000
Sacram'nto	1		.09		.08⅝		.08¼	.07⅝	09	.6¼	.08⅜	.07⅜	.18⅜	7,0 0
SquawMt.T	1	.11⅜	.12	.11¾	.12	.11⅞	.12	.11⅜	.12		.12	.10⅜	.12¾	9,000
Summit	1	.24						.24	.25			.24	.26	4 00
Temoni	1		.14½			.12¾	.13½	.12	.12¾	.10⅝	.11	.11⅞	.12⅝	2,5 0
T. F. T	1	.03½	.03⅝	.03¼		.03¼	.03⅝	.03¼	.03⅝			.03⅜	.04	26,000
Union	1	.35	.35½	.34	.35¼	.35½	3 ⅜	.34⅜	.34⅞	.29	.30	.32½	.32¾	43,000
Virginia M.	1	.03¾	.03¼	.03¼	.5⅜	.03⅜	.03¼	.03⅜	0 ⅜	(2⅜	.02⅞	.02¾	.03	13,000
Work	1	.19¼	.19⅜	.18⅝	.19½	.19	.20		.19	.12⅜		.17⅜	.18¼	3,000

*Official quotations Colo. Springs Board of Trade & Mg. Exch. Total sales for the four days ending December 24th of the Consolidated Exchange were: listed, 1,309,200; unlisted, 1,840,10).

SAN FRANCISCO, CAL.§

Name of Company.	Location.	Par. value.	Dec.21.	Dec.23.	Dec 24.	Dec.25.	Dec.26.	Dec.27.
Alta	Nev.	100	.09	.10	.10		.10	
Belcher	"	100	.29	.28	.29		.29	
Best & Belcher	"	100	.79	.80	*.82		.8	.84
Bodie Consolidated	Cal.	100	.41	.40	.40		.47	48
Bulwer	"	100		.10	.10		*.13	.10
Choliar	Nev.	100	.53	.53	.57		.56	.56
Con. California & Virginia	"	100	2.05	*2.30	2.35		*2.35	2.35
Crown Point	"	100	.24	.24	.25		.24	
Gould & Curry	"	100	.40	*.40	.40		.42	.44
Hale & Norcross	"	100	.85	*1.00	.96		*1.00	.98
Mexican	"	100	.59	*.60	.61		.61	.64
Mono	Cal.	100		*.08	.08		.8	.06
Ophir	Nev.	100	1 35	*1.35	1.40		1.35	1.40
Potosi	"	100	.53	*.50	*.53		.54	
Savage	"	100	.32	*.32	.33		.33	.32
Sierra Nevada	"	100	*.48	.47	.47		* 53	.53
Union Consolidated	"	100	.42	.40	.41		.43	.44
Utah	"	100		.04	.04		.04	
Yellow Jacket	"	100	.41	40	41		42	.49

§ Official telegraphic quotations San Francisco Stock Exchange. ‡ Holiday. *Asked.

BALTIMORE, MD.* Week ending Dec. 26.

Name of Company.	Location.	Par value.	Bid.	Ask.	Name of Company.	Location.	Par value	Bid.	Ask.
Balt. Mg. & Sm.Co	N. C...	5	.....	.....	Howard C'l & Coke	Md....	5	...	...
Conrad Hill	"	10	.....	.....	Lake Chrome	"	5	...	...
Con. Coal	Md.....	100	31	.....	Ore Knob	"	10	...	...
George's Cr'k Coal	"	100	108¾	115	Silver Valley	. C..	5	.....	20

* Official quotations Baltimore Stock Exchange.

NEW YORK.*

Name of Company.	Location.	Par val.	Dec. 21. H.	Dec. 21. L.	Dec. 23. H.	Dec. 23. L.	Dec. 24. H.	Dec. 24. L.	Dec. 25.‡ H.	Dec. 25.‡ L.	Dec. 26. H.	Dec. 26. L.	Dec. 27. H.	Dec. 27. L.	Sale.
Alice	Mont.	25													
American Flag	Colo.	1													
Barcelona	Nev.	5													
Bodie Con.	Cal.	100													
Belcher	Nev.	100													
Best & Belcher	"	100									.82				200
Breece	Colo.	25													
Brunswick	Cal.	2													
Cassie Creek	Idaho	1													
Chrysolite	Colo.	56			.24										500
Comstock T	Nev.	100			.07	.05							.07		1,400
do. bonds	"	100													
Con. Imperial	"	100													
Con. Cal. & Va	"	100	2.65		2.30						.65				1,000
Creede & C. C	Colo.	1									2.25				300
Crown Point	Nev.	100													
Daly	Utah	20													
Deadwood Terr.	S.Dak	25													
Enterprise	Colo	5													
Eu reka Con.	Nev.	20													
Gould & Curry	"	100													
Hale & Norcross	"	100	.8												
Homestake	S. Dak	100	27.00												200
Horn Silver	Utah	25													100
Iron Silver	Colo.	20			2.25										200
Isabella	"	1													
K. & Pembroke	Ont.	10													
Lacrosse	Colo.	10													
Leadville Con	"	1			.12								.12		1, 00
Little Chief	"	5									.20		.2		300
Mexican	Nev	100									60				200
Mollie Gibson	Colo	5													
Ontario	Utah	100													
Ophir	Nev	100													
Pneuix Con	Ariz	1					.09								300
Plymouth	Cal.	50													
Potosi	Nev.	100													
Q'cksilver	Cal	100													
do. pref	"	100													
Savage	Nev.	100									.35				100
Sierra Nevada	"	100											.55		200
Small Hopes	Colo.	2											1.0		4 0
Standard Con	Cal.	100					1.75								200
Union Con	Nev.	100													
Victor	Colo.	5													
Yellow Jacket	Nev.	100													

*Official quotations N. Y Stock and Con. Stock & Petroleum Exchanges. Total sales, 6,50 . ‡ Holiday.

BOSTON, MASS.*

Name of Company.	Location.	Par val.	Dec. 2.. H.	Dec. 2.. L.	Dec. 21. H.	Dec. 21. L.	Dec. 23. H.	Dec. 23. L.	Dec. 24. H.	Dec. 24. L.	Dec. 25.‡ H.	Dec. 25.‡ L.	Dec. 26. H.	Dec. 26. L.	Dec. 27. H.	Dec. 27. L.	Sales.
Allouez	Mich.	25													.50		160
Arnold	"	25	1.00				1.00								1 13	1.06	725
Atlantic	"	25	16.00	15.50	14.11		14.50	13.00	15.00	14.00					15 25	15 00	1,997
Bonanza	"	10															
Bost. & C. C	Colo..	1	.8				.35		.40	.35					.37½		3,200
Bost. & Mont.	Mont.	25	70.0	64.25	63.00	57 00	66.25	62.50	69.00	65.50					70.38	68.00	44,7 8
Butte & Bost	"	25	14.00	12 0	10.75	8.50	13.00	12 60	13 00	12.50					13.75	12.50	12,225
Cal. & Hecla	Mich.	25			295	29.0	295	280	295						296	295	81
Centennial	"	25															
Dominion Coal	N. S..	100	10.10	9.75	9.25	8.50	10.50	9.50	11.38	10.63					11.50		5,805
do. pref.	"	100	88.00	86.00					85.00						86.00	85.00	76
Franklin	Mich.	25	11.50	10 00	10 00	9.00	10.00		11.00	10.50					11.50	11.00	585
Illinois Steel	Ill.	100	60.0				62.50	59.00	64.00	63.00					65.00	64.75	1,110
Gold Coin	Colo..	1	1 03	.98	.95	.9	1.0	.98							1 05		3,550
Kearsarge	Mich.	25	13.00	12.00	10.00	7.00	11.75	9.75	12.00	11.50					12.00	11 25	6,178
Lake Sup. Iron	"	25															
Merced	Cal.	15	30.00	25.00	25.00	24.00	27.00	26.00	32.00	30.00					34.00	33.00	1,607
Minnesota (Ir.)	Minn.	100															
Napa	Cal..	7													7.00		100
National	Mich.	25															
Old Dominion	Ariz	25	15.00	14.00	14.00	13.00	16.00	14.00	17.00	16.00					18.50	17.25	3,750
Osceola	Mich.	25	25.00	24.00	23.00	20.00	23.00	21.00	24.00	23.0					24.75	24.00	1,483
Pontiac	"	25															
Quincy	"	25	120	115	115	110	116	112	120	118					130		600
do. scrip	"		66.00	65.00			66.00	65.00	66.00	65.00					67.00		434
Santa Rosa	Cal...	10															
San. Ysabel (G.)	"	5	8.50	7.50	8.00	7.00	10.00										
Tamarack	Mich	25	121	119	120	115	117	115	121						122	1 20	299
do. scrip	"						61 0	61.0									3
Tamarack, Jr.	"	25	13.50	12.00			15.00	11 50	14..5	13.50							967
Tecumseh	"	25															
Westingh E.&M	Pa.	50													30.00		10
do. pref.	"	50			51 00		53.00	49.50	53 0)	51.0)					55.00		28
Wolverine	Mich.	25	6.75	5.0	5.88	5.0)	6 0)	5.5)	6.10	5.75					6.50	6.00	2,915

* Official quotations Boston Stock Exchange. ‡ Holiday. § Ex-dividend. Total sales, 92,794.

INDUSTRIAL, COAL AND COAL RAILROAD.*

Name of Company.	Par value.	Dec. 21. H.	Dec. 21. L.	Dec 23 H.	Dec 23 L.	Dec. 24. H.	Dec. 24. L.	Dec. 25.‡ H.	Dec. 25.‡ L.	Dec. 26. H	Dec. 26. L.	Dec. 27. H.	Dec. 27. L.	Sales
Balt. & Ohio	100	42¾		44	42	44				42¾	40⅜	39⅛	33	4,277
Ches. & Ohio	100	13½	12⅜	15	14¼	15¼	14½			15¾	13½	15¾	15⅜	13,860
Col.C.& I.Dev	100			3		3⅜				3½	3⅜			700
Col. Fuel & I.	100	21	2 ½	24⅞	20½	26	24			27		25		3,688
Col.,H.V.&Tol	100	.5	14⅜	14½	14⅜	17⅛	15¼							3,000
do. pref	100													
Col. & H.Coal	100	2¼		2¼	2	2½	2⅛							530
Del. & Hud. C	100	120	118	123	120¼	127	123½			127	125⅛	125	124	8 250
Del., L. & W.	50	157	154	161	156	160				165¼	162	160¼	159⅝	2,347
General Elec.	100	23¾	22	2 ½	24	26¾	25			27	26½	26	25⅛	12,551
Lake Erie&W	100	16	15½	18¾	17	19¾	18¾			19⅞	19⅝	19		3,010
do. pref.	100	63	61	67½	63½	69¾	68¼			70	69½	68⅝	67⅝	3,319
Morris&Essex	100													
Nat'l Lead	100	21	17½	24½	22	25½	24			26	25⅜	25¾	24⅝	12,336
do. pref	100	80	78	85½	81¼	88¾	85			87⅝	86			3,140
N. J. Central	100	98	93	99	96⅝	101¼	99½			1 03⅛	1 01	101⅛	100	9,450
N. Y .L.E.&W	100	0¼	10	14⅜	14	15¾	14¾			15⅝	15¼			2,150
N.Y.,Ont.&W.	100	12½	11¾	13¾	12½	13⅝	13½			13⅞	13¾	13½	13¼	9,395
N.Y.,Susq.&W	100	8	7	9	8	9½	9¼			10	9¼	9¾	9	7,001
do. pref.	100	21½	20	25	22¾	25¾	24¾			26¾	25½	26	25¼	11,049
Norfolk & W.	50	1½		2¼	2	2½				1½				8,0
do. pref	50	6				8¾	8½			8¾	8			750
Phila. & Read.	50	7	6	6¾	6¼	5⅝				6¼	4⅝	5	4⅜	38,221
Tenn. C. & I.	100	25	23	26	23½	28½	26			30	28½	2 ¾	26¾	36,280
do. pref.	100													
Wells Fargo	100	95		95		99	95							286
Wheel. & L. E	100	9¼	8	10⅝	8⅞	11¼	10¾			12	11	11⅛	10	35,870
do. pref.	100	31⅝	29	33¾	32	36	34			37				1,993

* Official quotations N. Y. Stock Exchange. ‡ Holiday. Total shares sold, 22,322.

PITTSBURG, PA.* Week ending Dec. 26.

Name of Company.	Location.	Par value.	Bid.	Ask.	Selling price.	Name of Company.	Location.	Par value.	Bid.	Ask.	Selling price.
Coal:						Natural Gas:					
Mansfield C.&C	Pa.	50	.....	.....	.....	Allegheny	Pa.	100	.....	.....	.....
N.Y.&C.GasCo	"	50	.....	.....	.....	Chartiers Val	"	100	6½	7¾	.....
Mining:						Manufacturers	"	100	42	.....	.....
Enterprise	Colo.	5	.....	.....	.....	People's N.Gas	"	50	25	.....	.....
Lustre	Mex.	10	13¾	14½	.....	People's Pip'ge	"	25	14¾	15	.....
Silverton	Colo.	10	.....	.....	.....	Pennsylvania	"	50	5⅝	5¾	5⅝
Miscellaneous						Philadelphia	"	50	17⅜	17⅝	17¾
Carborundum	Pa.	100	.....	.....	.....	Wheeling	W.V.	50	16	16½	...

* Official quotations Pittsburg Stock Exchange.

ST. LOUIS, MO., STOCKS. Week ending Dec. 25.

Name of Company.	Location of Works.	Company's Office.	Par Value.	Bid.	Asked.	Last Dividend.
Central Lead	Flat River, Mo...	St. Louis, Mo	$100	$50	$60	.....
Con. Coal	" " ..	" " ..	100	19	21	June, '95, 1 p. c.
Doe Run Lead	Doe Run, Mo.....	" " ..	100	70	80	June, '92, 2 "
Kan. & Tex. Coal	.....	.....	100	64	66	.....
St. Joseph Lead	Bonne Terre, Mo.	New York	10	9	10	July, '95 1½ p. c.

LONDON.

Dec. 14.

NAME OF COMPANY.	Country	Product.	Capital stock.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
				£ s. d.	s. d.		£ s. d.	£ s. d.
Alaska-Mexican	Alaska	Gold	£160,000	1 0 0	0 7.2	July, 1895	1 0 0	1 5 0
Alaska Treadwell	"	"	1,000,000	5 0 0	1 6	" "	5 0 0	5 10 0
Alaska United	"	"					1 5 0	1 10 0
Banner	California	"					10 0	12 6
Cripple Creek	Colorado	"	400,000	4 0			12 6	15 0
De Lamar	Idaho	Gold & silver	400,000	1 0 0	1 0	Oct., "	1? 0	1 0 0
Elkhorn	Montana	Silver	200,000	1 0 0	0 3	July "	2 0	2 3
Fraser River							2 0 0	2 2 6
Gilpin	Colorado	Gold					10 0	11 0
Harqua hala	Arizona	Gold	300,000	1 0 0	0 6	Oct., 1894	6 3	9
Holcomb Valley	California	"	135,000	5 0			9	1 0
Jackson	"	"	101,159	5 0			1 3	1 6
Jay Hawk	Montana	"	285 000	1 0 0	0 6	Dec., 1892	5	1 0
Montana	"	Gold & silver	660,000	1 0 0	0 3	Oct., 1895	7 6	8 0
New Guston	Colorado	Silver	110,000	1 0 0	1 0	" 1892	5 0	10 0
Palmarejo	Mexico	Gold & silver	800,000	1 0 0			1 0	1 3
Plumas-Eureka	Colorado	Gold	281,250	2 0 0	0 9	Oct., 1895	11 3	13 9
Poorman	Idaho	Gold & silver	230,000	5 0			1 6	1 9
Richmond	Nevada	G'ld, sil. le'd	270,000	5 0 0	1 0	Nov., 1894	12 6	17 6
Sierra Buttes	California	Gold	245,000	2 0 0	0 6	Oct., 1895	8 9	11 3
Springdale	Colorado	"	240,000	4 1	0 2	Sept., 1894	1 6	1 9
Twin Lake	"	"	26,0 0	1 0 0	3 0	Feb., 1895	1 5 0	1 7 6
Colomb. Hydra'lic	Colombia	Gold	75,000	1 0 0	1 0	July, "	8 9	11 3
Frontino & Bolivia	"	"	140,000	1 0 0	0 6	Oct. "	1 5 0	1 7 6
Anaconda	Montana	Cop. & Sil.	6,?00,000	5 0 0			6 5 0	6 10 0
Cape Copper	So. Africa	Copper	600,000	2 0 0	1 3	June "	2 5 0	2 7 6
" " pref	"	"	150,000	2 0 0	1 3	" "	2 0 0	2 5 0
Copiapo	Chile	"	200,000	2 0 0	1 6	May "	2 2 6	2 5 0
Rio Tinto	Spain	"	3,?50,000	10 0 0	10 0	Nov. "	15 16 3	15 18 9
Tharsis	"	Sulpr & cop'r	1,250,000	4 0 0	4 0	April "	4 10 0	4 15 0
Bayley's Reward	W. Au'tl'ia	Gold	480,000	1 0 0	4 0	Dec., 1894	5 0	6 0
Broken Hill Prop'r.	N.S. Wales	Silver	384,000	8 0	2 0	Nov., 1895	2 12 6	2 15 0
Mt. Morgan Gold	Qu'ns'land	Gold	875,000	17 6	0 6	Dec. "	2 18 9	3 1 3
British S. Africa Co	So. Africa	Lands & Ex.	2,000,000	1 0 0		July "	5 6 3	5 7 6
City & Suburban	Transvaal	Gold	85,000	4 0 0	0 10	June "	4 15 0	5? 0 0
Crown Reef	"	"	?20,000	1 0 0	5 0	July "	10 5 0	10 10 0
De Beers Con	"	Diamonds	3,9?0,000	5 0 0	12 6	" "	24 17 6	25 2 6
Ferreira	"	"	9?,000	1 0 0	13 0	" "	17 0 0	18 0 0
Geldenhuis Estate	"	"	200,?00	1 0 0	6 0	" "	4 5 0	4 10 0
Jagersfontein	"	"	1,?00,000	10 0 0	10 0	" 1894	8 7 6	8 12 6
Langlaagte Estate	"	Gold	470,000	1 0 0	5 0	" 1895	5 5 0	5 10 0
New Primrose	"	"	278,750	1 0 0	5 0	" "	6 0 0	6 2 6
Robinson	"	"	2,?50,000	5 0 0	6 0	July "	9 10 0	9 5 0
Immer & Jack	"	"	250,000	1 0 0	2 0	Aug. "	?1 0 0	?2 0 0

PARIS.

Week ending Dec. 6.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Prices. Closing
			Francs.	Fr.	Fr	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27.000,000	2,000	100.00	1,805.00	1,880.00
" " Firminy	"	"	3,000,000	500	85.00	1,500.0	1,575.00
" " Fives-Lille	"	"	12,000,000	500	35.00	640.00	640.00
" " la Marine	"	"	20.000,000	500	35.00	832 50	832.50
" " Longwy	"	"		500	35.00	595.00	580.00
" " l'Horme	"	"		500		20.0 0	20.00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	40.00	185 00	180.00
Anzin	France	Coal			160.00	4,050.00	4,1?0.00
Bolco	Lower Cal	Copper		500		1,165.00	1,170.00
Bruay	France	Coal	3,0?0,000	400	700.00	18,000.00	18,100.00
Callao	Venezuela	Gold	32,200,000	125		10.00	10 5?
Cape Copper	S. Africa	Copper		50	1.50	55 62	57.50
Champ d'Or	"	Gold		25		61.25	67 50
Courrieres	France	Coal	6?0,000	300	160.00	4,20?.00	4,200.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	592.50	663.75
Dombrowa	Russia	Coal		500		545.00	535.00
Dynamite Centrale	France	Explosives		500	25.00	580.00	580.00
Huanchaca	Bolivia	Silver		125	5.00	9 ,00	75.62
Kebao	Tonquin	Coal		500		85.00	85.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	127.50	143 75
Laurium	Greece	Zinc & lead	16,?00,000	500	40.00	587.00	595.00
Malfidano	Italy	Zinc	12,500,000	500	44.00	89?.00	88?.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	?7.50	365.00	362.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	730.0	740.00
Nickel	N. Caled'nia	Nickel	12,720,000	500	30.00	115.0	118.75
Penarroya	Spain	Coal, etc.		500	32.50	1,165.00	1,105.00
Rebecca	Colo'do, U.S.	Gold				24.00	24.00
Rio Tinto	Spain	Copper	81,250,000	250	10.05	411.75	413.75
Robinson	S. Africa	Gold		125	12.50	258.0	268.75
Saint Elie	Fr. Guiana	"	4,000,000	25		23.50	23.00
Salines de l'Est	France	Salt		500	27.00	300.00	300.00
Tharsis	Spain	Copper		50	6.25	118.00	118.75
Vielle Montagne	Belgium	Zinc	9,000,000	80	30.00	437 50	435.00

MEXICO.

Week ending Dec. 19.

NAME OF COMPANY.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo	9,600	$0.??		$35	$36
Angustias	Guanajuato	2,400	25.00		1,?00	1,?50
Arevalo	Hidalgo		10.00		400	4?0
Asturiana y Anexas	Zacatecas	2,500	10.00		400	440
Bartolome de Medina	Hidalgo	2,0?0	3.00		300	300
Carmen	"	1,1?0	18.89		800	800
Castellana	Tepic	2,44?	3 0?		21?	220
Cerro Colorado	Chihuahua	15,000		$1.00	15	15
Cinco Senores	Guanajuato	2,000	20.00		1,060	1,060
Concepcion y Anexas	S. Luis Potosi	2,?00			2?0	280
El Oro	Guanajuato	500			100	100
Guadalupe	"	10,000	2.00		240	235
Luz de Maravillas	Hidalgo	1,100			350	38?
Pabellon	"	1,000	18.81		200	200
Purisima de los Com.	Zacatecas	2,400			50	70
Real del Monte	Hidalgo	2,554	20.00		1,45?	1,4?0
Rosario y Anexas	Durango	4,800			80	80
San Francisco	Hidalgo	2,000	6.00		500	500
S. Ped. Chalchihuites	"	1,000	2.00		100	100
San Rafael y An	"	1,200	36.00		1,9?0	1,850
do. free stock	"	1,200	16.00		850	825
Sta. Maria de la Paz	S. Luis Potosi	2,400			640	610
Soledad	Hidalgo	960	20.00		825	825
Sorpresa	"	960	5 00		450	450
Trinidad	Guanajuato	2,?00	8.00		295	290
Tlauzingo	Puebla	2,400			40	30
Union	Hidalgo	2,000	7.00		620	590
Zaragoza	"	1,100			50	30
Zomelahuacan (gold)	Vera Cruz	5,000			10?	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	110	110

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.*

Week ending Nov. 9.

NAME OF COMPANY.	Capital.	Share value. N'minal.	Share value. Paid up.	Last dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	9½ per cent.	$45½	$46	$46
Caracoles	315,000	100	100	5 "		50	
Descub. de Huantajaya	1,000,000	100	100	3 "	25	35	25
Huanchaca de Bolivia	8,0?0,000	100	?00	4 "	62	63½	64
Oruro	800,000	1,000	1,000		500	?3?	510
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	50	55	52½
Todos Santos	2,000,000	100	100	1 "	27	28	26½
Nitrate Cos:							
Agua Santa	5,000,000	500	500	4 "	150	155	156
Antofagasta	2,000,000	200	200	5 "	280	340	368
Union	3,?00,000	200	120	3 "	68	?0	?6

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.*

Nov. 8.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Dat'.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad	China	45,000	$5	$5	Oct,. 1894	$0.25	Taels 2 34
Punjom Mg. Co., Ltd.	"	60,000	4	3.75			" 4.36
do. pref	"	30,000	1	1			" 1.09
RaubA'lian G.Mg. Co.	"	200,000	£1	13s 10d.	Dec., 1893	0.21	" 2.92
Sheridan Con.Mg. Co.	Colorado, U.S	20,0.0	Taels 100	Taels 100			" 2.50

* Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.

NAME OF COMPANY.*	Par val.	Dec. 16. B.	Dec. 16. A.	Dec. 17. B.	Dec. 17. A.	Dec. 18. B.	Dec. 18. A.	Dec. 19. B.	Dec. 19. A.	Dec. 20. B.	Dec. 20. A.	Dec. 21. B.	Dec. 21. A.	Sales.
Addie C.	$1	.01⅜	.01⅝	.01⅜	.01⅝	.01⅛	.01⅝	.01	.01⅛	.01⅜	.01⅝	.01⅜	.01⅜	58,000
Agate	1	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝	.01	.01⅛	.01	.01⅛	.01⅛	.01⅜	263,500
Alamo	1	.07⅜	.07⅝	.08	.08⅜	.07⅝	.08	.07⅜	.07⅝	.07⅜	.07⅝	.06⅜	.07	57,000
Amity	1	.001	.004	.001	.004	.002	.004	.0?2	.0?5	.002	.0025		.0023	4,000
Aola	1	.03⅜	04	.03⅜	.04⅛	.04	.04⅛	.04	.04⅜	.04	.04⅜	.03⅞	.04	31,000
Anaconda	5	.69	.71	.69	.72	.69½	.70	.70		.?0		.58½	.60	51,300
Argentum J	2	.40	.35	.40	.45	.41	.42	.43⅜	.44	.43⅜	.44	.40	.41	3,800
Bangkok	1			.07		.07	.09	.08	.09	.08	.09	.08½	.09	7,200
Bankers	1	.19	.20⅜	.19½	.21⅜	.8	.21	.18	.21	.18	.21	.18	.21⅜	9,000
Ben Hur	1	.09⅜	.10⅜		.10⅜	.08		.08	.09	.08⅜	.09⅜		.08⅜	13,000
Big Johnny	1	.04⅜	.05	.04⅜	.06	.05⅜	.06⅜	.?5⅜	.?6	.05⅜	.06			47,500
Bob Lee	1	.02⅜	.03	.02⅜	.02⅝	.02⅜	.02⅝	.02⅛	.02⅜	.02⅛	.02⅜	.02⅛	.02⅝	4,000
Cannon ball	1	.01⅜	.01⅝	.01⅜	.01⅝					.01⅜	.01⅝	.01	.01⅜	396,000
Champagne	1			.0 8⅜	.01	.008	.01	.008	.01	.008	.01		.01	176,000
C. K. & N	1	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝	48,000
Colfax	1				.05		.0 ⅛		.05⅜		.05⅜		.05⅜	8,000
Colo. C. & M.	1	.07⅜	.07⅝	.07⅜	.07⅝	.07⅜	.07⅝			.07⅜	.07⅝	.06⅜	.07⅜	36,500
Creede & C.C	1	.06⅜	.07	.06⅜	.07	.06	.06⅜			.06	.06⅜	.06	.06⅜	12,000
Cripple C.C.	1	.18	.19	.19	.19½	.21	.2?	.21¼	.21⅜	.21¼	.21⅜	.17		73,100
Croesus	1	.02	.02⅜	.02⅞	.03¼							.02	.03	
Chimborazo	1	.0?⅜	.02⅜	.02⅞	.3	.02⅛	.03	.03	.03⅜	.03	.03⅜	.03	.03⅜	510,000
Eclipse	1	.02	.02⅜	.02	.02⅜	.02	.02⅜	.02	.02⅜	.01⅞	.02	.01⅜	.01⅝	26,000
Enterprise	1		.34		.31	.23		.?3					.35	
Eureka	1	.01⅜	.02		.02	.01⅜	.02⅜	.01⅜	.02⅛	.01⅜	.02	.01⅜	.1 ⅛	77,000
Garfield Gr.	1	.06¼	.06⅜	.06⅜	.06¾	.06⅜	.07	.06⅛	.07	.07¼	.07⅜	.06¾	.06¾	186,700
Gold Fleece	1	1.26	1.28	1.27		1.31	1.32½	1.31	1.42⅛	1.?2	1.34		1.30½	150
Gold & G	1		.25		.25		.25		.25	.23	.27		.24	
Gold Stand	1	.10	10⅜	.11	.11⅜	.11⅜	.11⅝	.11⅜	.11⅝	.10⅜	.11⅜	.09	.11	101,500
Goldstone	1	.02	.02⅜	.01⅜	.02	.01⅞	.02⅜	.01⅞	.02⅜	.02	.02⅛	.01⅜	.02	65,000
Henrietta	1	.01⅜	.01⅜	.01⅜	.0125	.013	.012⅛	.013	.014	.0145	.01⅜	.01⅜	.01⅜	318,000
Isabella	1	.52	.52⅜	.49	.49⅜	.49⅛	.49⅜	.49⅛	.49⅝	.48	.48⅜	.41⅛	.42	51,600
Jefferson	1	.10	12	.16⅛	.18	18	.19	.18	.20			.15	.18⅜	1,500
Justice	1		.06⅜	.05⅜	.06⅛	.04⅜	.06⅛	.05⅞	.06	.06⅛	.07	.04	.07	3,000
Keystone	1				.11		.10	.09						
Ladessa	1			.02	.02⅜	.02	.02⅛	.02	.02⅛			.01⅛		2,000
Lincoln Boy	1	.04	.04⅛	.04	.04⅛	.04⅜	.04⅝	.04⅜	.05⅜	.04⅜	.05	.04⅜	.05	307,300
Mollie Gib	5	.31	34	.35	.39	34	.39	.35		.35	.?9	.31⅜		2,000
Mt. Rosa	1	.17	.17⅜	.16	.17	.16⅜	.18⅜	.16⅜	.17	.16	.19	.15	.21	1,?00
NewZeal'nd	1	.12¼	.13	.12⅜	.13	.12⅛	.13	.12⅜	.13⅛	.12	.15	.10	.13	78,500
People's	1	.11	.14		.15			.11	.15	.10	.14	.10	.1?	1,?00
Pharmacist	1		.16		.15	.11	.15	.12⅜	.14	.12⅛	.14		.12⅜	4,500
Portland	1	1.86		1.88			1.90	1.8?	1.?5	1.75	1.85	1.40	1.65	4,600
Reno	1	.07⅜	.07⅝	.07⅜	.08	.08⅜	.08⅝	.08⅜	.08⅝	.08⅛	.08⅜	.07⅛	.08⅝	149,100
Royal Age	1	.02	.03⅜		.02	.01⅜	.01⅝	.01⅜	.01⅝			.01⅜	.01⅜	392,000
Sacramento	1	.09	.09⅛	.09	.09⅛	.07⅜	.08⅛	.08⅛	.08⅛	.08	.08⅛	.07⅜	.07⅝	170,000
Santa Fe	1	.01⅛	.01⅜	.01	.01⅜	.01	.01⅛	.01⅜	.01⅛	.01⅛	.01⅜	.1⅜	.01⅛	103,000
Tenderfoot	1	.03	.03⅜	.03	.03⅛	.03	.03⅜	.03⅛	.03⅜		.02		.02	2,000
Union Gold	1	.34⅛	.35	.33⅛	.34⅛	.33⅛	.34	.34	.34⅛	.35	.38	.25	.26⅛	17,000
Unity	1	.009	.01	.009	.010⅝		.0095	.007	.009	.003	.0084	.1065	.009	371,000
Va. M. Con	1	.02⅛	.03⅛	.03	.03⅜	.02⅜	.03⅛	.03	.03⅜	.02⅛	.03⅜	.02⅛	.03⅜	2,000
Wh. of For	1	.007⅜	.008⅛	0 8	.009	.009	.009⅛	.0085	.0095			.0 83⅛	.0?9	97,000
Work	1	19	.19⅝	.18⅛	19¼	.18	.19⅛	.18⅝	.19⅛	.17¼	.20	.15	.16	14,500

‡All the companies are located in Colorado. Total shares sold, 4,341,950.

PHILADELPHIA, PA.*

NAME OF COMPANY.	L'cation.	Par Val'e	Dec. 19. H.	Dec. 19. L.	Dec. 20. H.	Dec. 20. L.	Dec. 21. H.	Dec. 21. L.	Dec. 23. H.	Dec. 23. L.	Dec. 24. H.	Dec. 24. L.	Dec. 25.† H.	Dec. 25.† L.	Sales
Bethlehem Ir.	Pa.	50	70.00												23
Bloom. C. & C.	"	50													
Cambria Iron	"	50	48.00		45 00		45.00	44.00	44.50	44.00	46.00	45.00			1,474
" Receipts	"	50													
Cent. Coal & C.	"	100													
C., O. & Glf. Vt. Tst Ctfs.	I. T.	50	14.38	13.25	13.50	13.00	12 75	10.75	13 50	12 88	13.50	13.38			3,4 0
Fl. Top C.L.As.	W.V.	100													
" pref.	"	100													
Hunt & Br.Top	Pa.	50													
" pref.	"	50													
Hutchinson C.	"														
" pref.	"														
Lehigh C. & N.	"	50	46.00	45 00	45.00	44.60	44.00		44.50	44.00	45.00	44 00			376
Lehigh Valley	"	50	37.88	37.75	54.63	34.50	54.25	34.00	38.13	38.00	39 00	38.75			4,980
Little Sch'ykill	"	50													
Penn. Gas Coal	"	50													
Penna. R. R.	"	50	51 75	51.50	50 00	49.75	52.00	51.63	52 25	52.00	52.75	52.50			13,453
Penna. Salt	"	50													
Penna. Steel	"										36.00				100
" pref	"														
Westmorel'd C	"	50													
Wyo. Valley C.	"	100													

* Official quotations Philadelphia Stock Exchange. †Holiday. Total sales, 23,836.

SALT LAKE CITY, UTAH.*

Week ending Dec. 21.

Name of Company.†	Par value.	Bid.	Asked.	Actual selling price.	Name of Company.†	Par value	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.45	$0.55	$0.50	Gold Dust		$0.50	$0.50	$0.50
Alliance	1	1.25	1.40	1.35	Horn Silver	25	2.35	2.70	2.60
Amer. Nat. Gas	10	.10	.15	.14	Mammoth	25	1.50	1.65	1.60
Anchor	20	2.65	3.00	2.90	Mercur	25	6.50	6 75	6.50
Bogan	1	.10	.25	.20	Morgan	125	.65	.75	.65
Bullion Beck & C.	10	6.?2	7.25	7.00	Ontario	100	8.50	9.50	9.00
Cane Springs	5		.75		Rover	10	1.15	1.25	1.25
Centen'l Eureka	50	57.00	90.00	60.00	Silver King	20	14.35	14.60	14.50
Comstock	25	.10	.25	.15	Sunshine	10	3.40	3.75	3.60
Dalton	5	.14	.18⅜	.16⅜	Tetro	1	.06	.25	.10
Daly	20	6.00	6.30	6.35	Utah	1	1.00	1.25	1.10
Daly West	20	6.00	6.30	6.35	Utah Lime	10	3.50	4.00	4.00

* Special Report of James A. Pollock. † All the companies are located in Utah.

ASPEN, COLO.*

Week ending Dec. 20

NAME OF COMPANY.	Location.		Par value.	Bid.	Asked.	Sales.	Price
Alta Argent	Aspen,	Colo.	$1.00	$0.08	$0.08¾	18,000	$0.8¾
Argentum-Juniata	"	"	2.00	.38	.40	22,500	.40
Aspen Contact	"	"	5.00	.15	.18		
Aspen Deep Mining	"	"	1.00	.07¾	.07¾	33,000	.07¾
Best Friend	"	"	1.00	.04	.04¼	11,000	.04¼
Bi-Metallic	"	"	1.00	.01	.01¼	300	.01¼
Bushwhacker	"	"	1.00	.04	.04¼	500	.04¼
Caverhill Consolidated	"	"	1.00	.20	.20	43,000	.20
Della S	"	"	5.00	.50	.58	14,000	.58
Gold Valley Placer	"	"	1.00				
Mineral Farm Consolidated	"	"	1.00	.04	.05	9,000	.04¼
Mollie Gibson	"	"	5.00	.34	.35	2,300	.35
Sheep Mt. T. & M	Crystal,	"	1.00				
Smuggler	Aspen,	"	1.00	1.00	1.20	1,000	1.20
Taylor River (Old Colony)	Taylor River,	"	1.00	1.00	1.00	28,000	1.00

* Special Report of Arkell, MacMillan & Stewart. Total sales, 161,600.

HELENA, MONT.*

Week ending Dec. 21.

NAME OF COMPANY.	Location.		Company's office		Par value.	Bid.	Asked	Shares sold.	Price	Date.
Am. Dev. & M. Co.	Silv. Bow Co, Mont.		Butte,	Mont.	$1	$1.75	$2.00	300	$2.00	Dec. 10
Bald Butte	L. & C'k'e	"	Helena	"	1	3 00	3.50			
Benton Group	Meagher	"	W.Sph. S.	"	5					
Combination	"	"	"	"	10	.65	.75			
Hel'a & Frisco	Shoshone	" Idaho	Helena,	"	5	.10	.25			
Hel. & Livings'n	L. & C'k'e	" "	"	"		2.00	3.00			
Iron Mountain	Missoula	" "	"	"	10	.45	.50	1,500	47½50	Dec.
Merrill (Gold)	Jefferson	" "	Butte	"	1		1.00			
Ontario	DeerLodge	"	Helena	"	1					
Yellowstone	Meagher	" "	W.S.Sprg'e	"	5					

* Special Report of Samuel K. Davis. Total sales, 1,800.

DULUTH, MINN.*

Week ending Dec. 21.

NAME OF COMPANY.	Location.			Company's Office.	Par value.	Bid.	Ask.	Price.
Adams Iron	St. Louis Co., Minn			Duluth, Minn	$100	$5.00		
Biwabik Mt. Iron	"	"	"	" "	100	21.0?	$22.50	
Lake Superior Con	"	"	"	" "	100	16.00	18 00	$16.50
Mesabi Chief	"	"	"	" "	100	1.75	2.00	
Minnesota Iron	"	"	"	New York City	100	70.00	72.50	
Mountain Iron	"	"	"	Duluth, Minn.	100	62.00	68.00	66.00

* Official quotations Duluth Board of Trade.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par val	Assessments. Total Levied	Assessments. Date and amount of last.			Dividends. Total paid.	Dividends. Date & amount of last.		
1	Adams, G. L.	Colo..	$1,500,000	150,000	$10	*	.....	.....	.....	$698,500	Oct..	1815	04
2	Alaska-Treadwell, G.	Al'ska	5,000,000	200,000	25	.....	.....	.....	.....	2,224,000	Apr..	1895	.37½
3	Alice, S.	Mont.	10,000,000	400,000	25	*	.....	.....	.....	975,000	Nov..	1891	.06¼
4	Amador, G.	Cal.	1,250,000	250,000	5	*	.....	.....	.....	31,250	Aug..	1890	.12½
5	American, G.	Colo..	8,000,000	800,000	10	*	.....	.....	.....	225,000	Mar..	1892	.05
6	American Belle, S. & C.	Colo.	2,000,000	4 0,000	5	*	.....	.....	.....	50,000	Mar..	1892	.12½
7	American Nettie, S. &	Colo..	.....	400,000	.....	.....	.....	.....	.....	278,400	Mar..	1892	.05
8	Argentum-Juniata..	Colo..	600,000	1,200,000	2	.....	.....	.....	.....	156,000	Oct..	1895	.03
9	Atlantic, C.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	180,000	Feb..	1891	1.00
10	Argvie, G.	Colo..	1,000,000	1,000,000	1	*	.....	.....	.....	20,000	Mar..	1892	.01
11	Aspen Mg. & S., S. L.	Colo..	2,000,000	200,000	10	*	.....	.....	.....	900,000	July.	1894	.10
12	Aurora, L.	Mich..	2,500,000	100,000	25	.....	.....	.....	.....	650,000	Feb..	1893	2.00
13	Badger, S.	Ont..	250,000	50,000	5	.....	.....	.....	.....	37,500	Mar..	1890	.25
14	Bald Butte	Mont	250,000	250,000	1	*	.....	.....	.....	382,000	Jan.	1895	.05
15	Bangkok-C. Bell, C. S. L.	Colo..	600,000	600,000	1	.....	.....	.....	.....	101,510	Nov.	1895	.00½
16	Bates Hunter, S. &	Colo..	1,000,000	1,000,000	1	.....	.....	.....	.....	67,500	Dec..	1891	.00¼
17	Belden, F. E., M.	N. H..	500,000	100,000	5	*	.....	.....	.....	167,113	Dec..	1895	.04
18	Belle Isle, S.	Nev..	10,000,000	100,000	100	20,271	Sept	1893	.10	300,000	Dec..	1879	.25
19	Belcher, S. &	Nev..	10,400,000	104,000	100	3,262,900	Nov.	1893	.20	15,397,210	Apr..	1876	1.00
20	Bellevue, Idaho, S. L.	Idaho	1,250,000	125,000	10	120,000	Dec..	1889	.25	300,000	Jan..	1890	.10
21	Best Friend	Colo.	1,000,000	1,000,000	1	*	.....	.....	.....	90,000	Feb..	1892	.01
22	Bi-Metallic, S. &	Mont.	5,000,000	200,000	25	.....	.....	.....	.....	1,630,000	June	1893	.10
23	Bodie Con., G. I.	Cal.	10,000,000	100,000	100	714,990	July	1893	.15	1,677,572	Dec..	1894	.25
24	Boston & Mont., G.	Mont.	2,500,000	250,000	10	*	.....	.....	.....	720,000	June	1886	.15
25	Boston & Mont., C. &	Mont.	3,750,000	150,000	25	*	.....	.....	.....	3,075,000	Nov..	1895	5.00
26	Brotherton, L.	Mich.	2,000,000	80,000	25	*	.....	.....	.....	120,000	Mar..	1893	.50
27	Bulwer, G.	Cal..	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct..	1892	.05¼
28	Bunker Hill & S. S. L.	Idaho	8,000,000	800,000	10	*	.....	.....	.....	150,000	Oct..	1888	.06
29	Caledonia, G.	Dak..	10,000,000	100,000	100	505,000	May.	1885	.15	92,000	Oct..	1890	.06½
30	Calumet & Hecla C.,	Mich..	2,500,000	100,000	25	1,300,000	.....	.....	.....	44,350,000	Dec..	1895	5.00
31	Centen'l-Eureka, S. L.	Utah.	1,500,000	30,000	50	30,000	Mar.	1888	1.00	1,410,000	Nov.	1895	1 00
32	Central, C.	Mich.	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1 00
33	Champion, G	Cali..	240,000	24,000	10	150,000	.....	.....	.....	216,000	Aug..	1895	.10
34	Chrysolite, S. & L.	Colo..	10,000,000	200,000	50	*	.....	.....	.....	1,650,000	Dec..	1884	.25
35	Coeur D'Alene, S. L.	Idaho	5,000,000	500,000	10	.....	.....	.....	.....	340,000	June	1893	.06
36	Colorado Central, S. L.	Colo..	2,700,000	275,000	10	*	.....	.....	.....	502,661	Apr..	1893	.05
37	Commonwealth, S.	Nev..	10,000,000	100,000	100	200,000	Nov.	1893	.10	30,000	Nov..	1890	.20
38	Confidence, S. L.	Nev..	2,496,000	24,960	100	1,589,550	Aug..	1892	.50	277,680	Apr..	1889	1.00
39	‡Cons. Cal. & Va., S. &	Nev..	21,400,000	216,000	100	216,000	Dec..	1892	.50	3,952 800	Mar.	1895	.25
40	Contention, S.	Aris..	12,500,000	250,000	50	.....	.....	.....	.....	2,437,500	Aug.	1892	.20
41	Cook's Peak, S.	N. M..	2,000,000	200,000	10	.....	.....	.....	.....	119,532	Nov.	1892	.05
42	Cop. Queen Con., C.	Aris..	2,000,000	200,000	10	.....	.....	.....	.....	1 910,000	June.	1895	.25
43	Coptis	Nev..	10,000,000	100,000	100	.....	.....	.....	.....	68,000	Feb..	1895	.01
44	Cortes, S.	Nev.	1,500,000	300,000	5	*	.....	.....	.....	735,000	Feb..	1893	.15
45	Crescent, S. L. &	Utah..	15,000,000	600,000	25	60,000	Oct..	892	.10	288,000	Oct..	1898	.02
46	Crown Point, G. &	Nev..	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan..	1875	.00
47	Daly, S. L.	Utah.	3,000,000	150,000	20	*	.....	.....	.....	2,850,000	May..	1893	.25
48	‡Deadwood-Terra, G.	Dak..	5,000,000	200,000	25	*	.....	.....	.....	1,140,000	Sept..	1892	.05
49	DeLamar, G. &	Idaho	2,000,000	400,000	5	.....	.....	.....	.....	1,222 000	Oct..	1895	.24
50	Derbec B. Grav., G.	al..	10,000,000	100,000	100	100,000	Sept.	1892	.10	260,000	Mar.	1891	.05
51	Dexter, G. &	Nev..	1,000,000	100,000	10	.....	.....	.....	.....	245,000	July	1893	.25
52	Elkhorn, S.	Mont.	1,000,000	200,000	5	*	.....	.....	.....	1,324,689	May.	1895	.12½
53	Elkton	Colo..	500,000	500,000	1	*	.....	.....	.....	60,000	Dec..	1894	.01
54	Enterprise, S.	Colo..	2,500,000	500,000	5	*	.....	.....	.....	850,000	June.	1893	.25
55	Eureka Con., S. L. &	Nev..	1,000,000	50,000	20	550,000	June	1889	.50	5,112,500	Jan..	1892	.25
56	Eureka Hill, G. & L.	Utah.	1,000,000	10,000	10	.....	.....	.....	.....	1,500,000	Jan..	1891	.04
57	Evening Star, S. L.	Colo.	500,000	50,000	10	*	.....	.....	.....	1,437,500	Dec.	1889	.25
58	Father de Smet, G.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
59	Franklin, C.	Mich.	1,000,000	40,000	25	320,000	June	1867	2.50	1,240,000	Jan..	1894	2.00
60	Glengarry	Mont.	1,000,000	100,000	10	.....	.....	.....	.....	10,000	June.	1891	10
61	Gold & Globe, G.	Colo..	750,000	750,000	1	.....	.....	.....	.....	9,375	Mar..	1895	.00¼
62	Gould & Curry, S. &	Nev..	10,800,000	108,000	100	4,688,400	Oct	1893	.10	3,826,800	Oct..	1870	10.00
63	Grand Prize, S.	Nev..	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
64	Granite Mountain, S.	Mont.	10,000,000	400,000	25	.....	.....	.....	.....	12,120,000	July.	1892	.20
65	Great Western, L. Q.	Cal...	5,000,000	50,000	100	80,526	.....	1889	.15	388,366	Nov	1893	.25
66	Hale & Norcross, G. &	Nev...	11,200,000	112,000	100	5,646,800	June	1897	.50	1,822,000	Aug.	1893	.50
67	Hecla Con., S. & L. C.	Mont.	1,500,000	30,000	50	.....	.....	.....	.....	2,115,000	Aug..	1895	.50
68	Hel'a Mg. & Red, S. L. &	Mont.	5,315,000	663,000	8	*	.....	.....	.....	197,970	July.	1884	.06
69	Helena & Frisco, S. L.	Idaho	2,500,000	500,000	5	.....	.....	.....	.....	280,000	Feb..	1892	.02
70	Helena & Victor	Mont.	1,000,000	200,000	5	.....	.....	.....	.....	80,000	May.	1892	.05
71	¶ Holmes, S.	Nev...	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr.	1892	.25
72	Homestake, G.	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,712,500	Dec..	1895	.25
73	Hope, S.	Mont.	1,000,000	100,000	10	*	.....	.....	.....	552,250	Jan.	1895	.10
74	Horn-Silver, S. L.	Utah.	10,000,000	400,000	25	*	.....	.....	.....	5,137,500	Apr..	1895	.12½
75	Idaho, G.	Cal..	$10,000	3,100	100	.....	.....	.....	.....	5,489,000	Sept.	1893	2.50
76	Illinois, S.	N. M..	100,000	100,000	1	*	.....	.....	.....	45,000	Apr..	1889	.20
77	Iron Mountain, S.	Mont.	5,000,000	500,000	10	*	.....	.....	.....	395,000	Nov..	1895	.02
78	Iron-Silver, S. L.	Colo..	10,000,000	500,000	20	*	.....	.....	.....	2,500,000	Apr..	1886	.20
79	Jackson, G. &	Nev..	5,000,000	50,000	100	247,500	Mar..	1893	.20	83,000	Feb.	1895	.14
80	Kearsarge, C.	Mich.	,000,000	40,000	25	190.000	Oct..	1887	1.00	12 ,000	Dec..	1895	1.00
81	Kennedy	Cal...	10,000,000	100,000	100	.....	.....	.....	.....	2,734,000	Aug..	1895	.48
82	Lake Superior, L.	Mich..	2,100,000	84,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
83	Leadville Con., S. L.	Colo..	4,000,000	400,000	10	*	.....	.....	.....	516,000	Feb..	1893	.03
84	Lexington, G. & S.	Mont.	4,000,000	40,000	100	*	.....	.....	.....	652,300	July.	1893	.90
85	Little Chief, S. L.	Colo..	10,000,000	200,000	50	*	.....	.....	.....	820,000	Dec..	1890	.05
86	Maid of Erin	Colo..	5,000,000	600,000	5	*	.....	.....	.....	708,900	Apr..	1893	.25
87	Mammoth, S. L. C.	Utah	10,000,000	400,000	250	110,000	.....	1892	.25	1,040,000	Dec..	1891	.10
88	Maxfield	Utah.	3,000,000	300,000	10	.....	.....	.....	.....	117.000	Apr..	1892	.03
89	Mayflower, D. gravel	Cal...	1,200,000	60,000	20	.....	.....	.....	.....	242,000	Aug.	1895	.10
90	Minas Prietas, G. &	Mex..	1,000,000	100,000	10	*	.....	.....	.....	350,000	Dec..	1890	.50
91	Minnesota, C.	Mich.	1,000,000	40,000	25	420,000	April	1886	1.00	1,820.000	Mar..	1876	.....
92	Minnesota Iron, I.	Minn.	8,500,000	165,000	100	.....	.....	.....	.....	2,745,000	Apr..	1893	1 50
93	Mollie Gibson, S.	Colo..	5 000,000	1,000,000	5	19 500	Jan.	1891	.01	4,080.000	Jan..	1895	.05
94	Monitor, G.	S. Dak	2,500,000	250,000	10	.....	.....	.....	.....	45,000	Oct..	1890	.03
95	Mono, G.	Cal...	5,000,000	50,000	100	797,500	Feb..	1893	.25	12,500	Mar	1895	.25
96	Montana, Lt., G. & S.	Mont.	3,300,000	660,000	5	*	.....	.....	.....	2,701,575	Jan.	1895	12½
97	Moose	Colo..	600,000	600,000	1	.....	.....	.....	.....	72,000	Nov..	1894	.02
98	Morning Star, S. L.	Colo..	1,000,000	100,000	10	.....	.....	.....	.....	1,025,000	Dec..	1891	.15
99	Morning Star Drift, G	Cal..	240,000	2,400	100	.....	.....	.....	.....	446,300	Oct..	1895	7.00
100	Moulton, S. G.	Mont.	2,000,000	400,000	5	*	.....	.....	.....	460,000	July.	1894	.05
101	Mt. Diablo, S.	Nev..	5,000,000	50,000	100	187,500	June	1880	2.00	225.000	Nov	1896	.90
102	Mt. Rosa, G	Colo..	1,000,000	1,000,000	1	.....	.....	.....	.....	10,000	Jan..	1895	.10
103	Napa, Q.	Cal...	700,000	100,000	7	.....	.....	.....	.....	740,000	Oct..	1895	.20
104	Navajo, G. & S.	Nev.	10,000,000	100,000	100	588,714	Sept.	1893	.10	226,111	Apr..	1889	.10
105	New Guston, S.	Colo..	550,000	110,000	5	.....	.....	.....	.....	1,877.500	Apr..	1892	.75
106	North Banner Con.	Cal...	1,000,000	100,000	10	.....	.....	.....	.....	20,000	July..	1891	.05
107	North Commonw'th	Nev,.	10,000,000	100,000	10	90,000	Jan..	1893	.10	25,000	J une	1891	.25
108	N. Hoover Hill, G. &	N. C.	800,000	120,000	2½	*	.....	.....	.....	30,000	Dec.	1895	.06¼
109	North Belle Isle, S.	Nev..	10,000,000	100,000	100	513,075	April	1893	.10	230,000	May	1888	.50
110	North Star, G.	Cal..	1,700,000	100,000	10	20,000	.....	1885	.02	450 000	June	1893	.50
111	Nugget, G.	.....	1,000,000	1,000,000	1	*	.....	.....	.....	10,000	Jan..	1895	.00½
112	Omaha Cons., G.	Cal...	2,400,000	24,000	100	.....	.....	.....	.....	97,200	July..	1894	.15
113	Ontario, S. L.	Utah	15,000,000	150,000	100	.....	.....	.....	.....	13,175,000	Oct..	1892	.50
114	Ophir, G. &	Nev..	10,000,000	100,000	100	4,391,040	July.	1893	.25	1,595,800	Jan	1880	1.00
115	Osceola, C.	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,947,500	June	1895	1.00
116	Pacific Coast, B.	Cal...	2,000,000	20.000	100	.....	.....	.....	.....	422,500	July.	1893	1.00
117	Parrot, C.	Mont.	2,300.000	230,000	10	.....	.....	.....	.....	1,569,000	June	1893	.10
118	Petro	Utah.	10,000,000	10,025	100	.....	.....	.....	.....	17,500	July..	1891	.75
119	Pharmacist, G.	Cal...	1,200,000	1,200,000	1	.....	.....	.....	.....	80,000	June.	1893	.01
120	Plumas Eureka, G.	Colo.	1 406,250	140,600	50	.....	.....	.....	.....	2,696,295	Oct..	1893	.18
121	Plymouth Con., G.	Cal...	5,000,000	100,000	50	*	.....	.....	.....	2,280,000	Feb.	1892	.40
122	Poorman; G. S.	Idaho	575,000	900,000	1 25	*	.....	.....	.....	68,250	Sept.	1892	.15
123	Portland, G.	Colo..	3,000,000	3,000,000	1	.....	.....	.....	.....	868 500	Nov..	1895	.02
124	Quicksilver, pref., Q.	Cal...	4,300,000	43,000	0	.....	.....	.....	.....	1,823,911	June	1891	1.25
125	" com., Q.	Cal...	5,700,000	57,000	100	.....	.....	.....	.....	443,867	July.	1892	.40
126	Quincy, C.	Mich..	1,250,000	50,000	105	200,000	Dec..	1862	.....	7,69 .,000	Aug..	1895	4.00
127	Red Cloud	Idaho	1,000,000	200,000	25	.....	.....	.....	.....	153,000	Dec.	1892	.10
128	Retriever, L.	S. Dak	1,250,000	250,000	5	.....	.....	.....	.....	20,000	Aug..	1891	.03
129	Rialto, G.	Colo..	900,000	900,000	1	*	.....	.....	.....	50,250	Apr..	1892	.01¼
130	Richmond, S. L.	Nev..	1,350,000	54,000	5	*	.....	.....	.....	4.386,780	Sept.	1893	.25
131	Rico-Aspen	Colo..	5,000,000	1,000,000	25	.....	.....	.....	.....	325,000	Nov..	1894	.02½
132	Ridge, C.	Mich..	1,250,000	50,000	5	219,939	Mar.	1886	50	29,785	Feb..	1893	.50
133	Robinson Con., S. L.	Colo..	10,000,000	200,000	50	*	.....	.....	.....	885,000	Mar	1896	.05
134	Savage, S.	Nev..	11,200,000	112,000	50	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
135	Sierra Buttes, G.	Cal...	2,222,000	122,500	10	.....	.....	.....	.....	1,559,935	June	1893	1 2½
136	Sierra Nevada, S. &	Nev..	10,000,000	100,000	10	8,521,910	Aug.	1893	.30	702,000	Jan..	1871	1.00
137	Silver Cord, S. L. &	Colo..	5,000,000	500,000	100	.....	.....	.....	.....	270,000	Apr..	1889	.10
138	Silver King, S. L. &	Utah.	10,000,000	100.000	10	97,479	Aug..	1892	.25	1,380,000	N. v..	1895	.25
139	Silver Mg. of L. V., S. L.	N. M.	500.000	500,000	101	.....	.....	.....	.....	300,000	Dec..	1891	4.05
140	Small Hopes Con., S.	Colo..	5,000,000	250,000	0	*	.....	.....	.....	8,225,000	Oct..	1895	.10
141	Standard, G. & S.	Cal...	10,000,000	100,000	20	100.000	June	1890	.50	3,771,159	June.	1895	.10
142	Swansea, G. &	Colo..	600,000	60,000	100	.....	.....	.....	.....	39,000	Sept.	1892	.10
143	Tamarack, C.	Mich..	1,250,000	50,000	15	520,000	April	1885	3.00	4,670,000	Dec..	1895	4.00
144	Trinity Riv'r Hydr., G	Colo..	500,000	500,000	21	*	.....	.....	.....	37.500	Apr..	1894	.00¼
145	Union	Colo..	1,250,000	1,250,000	1	.....	.....	.....	.....	27,740	May..	1895	.01
146	United Verde, C.	Aris..	3,000,000	300,000	0	*	.....	.....	.....	562,500	Dec	1893	.25
147	Victor, G	Colo..	1,000,000	200,000	1½	.....	.....	.....	.....	455,000	Dec..	1895	.10
148	Victor L. & M. Co., G.	Colo..	600,000	600.00	1	.....	.....	.....	.....	6,000	June.	1895	.05
149	Ward Con., S.	Colo..	2,000.000	200,000	1	.....	.....	.....	.....	20,000	Dec.	1889	05
150	W. V. O. D.	Cal..	60,000	30,000	2	22,500	May.	1891	.10	106,000	Aug.	1895	.10
151	Yankee Girl	Colo	1,300,000	260,000	5	.....	July.	1893	.25	520,000	July	1891	.25
	Yellow Jacket, G.	Nev..	12,000,000	120,000	100	.....	.....	.....	.....	2,184,000	Aug..	1871	1.50

NON-DIVIDEND-PAYING MINES

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Assessments. Date and amo't of last.		
1	Ajax, G. S. L.	Utah.	$3,000,000	300,000	$10	$15,000	Mar.	1895	$21
2	Alliance, S. G.	Utah.	100,000	100,000	1	120,000	Feb..	1891	.10
3	Alloues, C.	Mich.	2,000,000	80,000	25	1,424,937	Oct..	1891	.10
4	Alpha Con., G. & S.	Nev..	5,000,000	30,000	100	209.000	Sept.	1892	.13
5	Alta, S.	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	.05
6	American Flag, S.	Colo..	1,250,000	125,000	1	300,000	June	1897	.....
7	Anchor, S. L. &	Utah.	3,000,000	150,000	5	560,000	July.	1893	.15
8	Barcelona, G.	Nev..	5,000,000	300,000	5	*	.....	.....	.....
9	Belmont, G.	Cal...	500,000	500,000	100	*	.....	.....	.....
10	Belmont, S.	Nev..	5,000,000	50,000	100	735,000	April	1895	.10
11	Best & Belcher, S. &	Nev..	10,080,000	100,800	10	2,405,275	Aug..	1892	.25
12	Black Oak, G.	Cal...	3,000,000	300,000	100	*	.....	.....	.....
13	Brownlow, G.	Colo..	250,000	250,000	5	.....	.....	.....	.....
14	Brunswick, G.	Cal...	2,000,000	400,000	2	.....	.....	.....	.....
15	Bullion, S. &	Nev.	10,000,000	100,000	100	2,890,000	Aug.	1892	.25
16	Butte & Boston, C. &	Mont.	5,000,000	200,000	10	.....	.....	.....	.....
17	Butte Queen, G.	Cal...	1,000,000	100,000	1	6,000	Jan..	1892	.....
18	Calaveras, G.	Cal...	500,000	500,000	5	.....	.....	.....	.....
19	Calaveras Con., G.,	Cal...	800,000	160,000	10	.....	.....	.....	.....
20	California, G.	Cal...	1,000,000	100,000	5	9,000	Mar..	1892	.....
21	California Con. L. Q.	Cal...	2,250,000	450,000	10	.....	.....	.....	.....
22	Challenge Con., G. &	Nev..	5,000,000	50,000	10	.....	.....	.....	.....
23	Chollar, S. G.	Nev..	11,200,000	112,000	.....	2,212,000	May..	1895	.5.
24	Colchis, S. G.	N. M.	500,000	150,000	5	.....	.....	.....	.....
25	Colorado, S.	Colo..	1,625.000	325,000	1	.....	.....	.....	.....
26	Comstock, S.	Utah.	1,250,000	250,000	100	.....	.....	.....	.....
27	Comstock Tun.	Nev..	10,000,000	100,000	100	35,000	Mar.	1887	.10
28	Con. Imperial, G. &	Nev..	5,000,000	50,000	50	2,062,500	Jan..	1892	.25
29	Con. New York, S. & G.	Nev..	5,000,000	100,000	100	110,000	Mar..	1892	.10
30	Con. Pacific, G.	Cal...	6,000,000	40,000	10	198,000	June	1890	.10
31	Crescent, S. L.	Colo..	3,000,000	300,000	100	*	.....	.....	.....
32	Crocker, S.	Aris..	10,000,000	100,000	1	165,000	Aug.	1892	.05
33	Crowell, G.	N. C.	500,000	500,000	1	*	.....	.....	.....
34	Dahlonega, G.	Ga....	250,000	250,000	10	*	.....	.....	.....
35	Decatur, S.	Colo..	1,500,000	300,000	.....	*	.....	.....	.....
36	Denver City S.	Colo .	5,000,000	500,000	11	*	.....	.....	.....
37	Denver Gold, G.	Colo..	300,000	60,000	5	.....	.....	.....	.....
38	Dickens-Custer, S.	Idaho	2,100,000	420,000	5	.....	.....	.....	.....
39	Durango, G.	Colo..	500,000	500,000	1	*	.....	.....	.....
40	El Dorado, G.	Cal...	1,000,000	250,000	4	*	.....	.....	.....
41	Emma, S.	Utah.	625,000	500,000	125	.....	.....	.....	.....
42	Emmons, S. L.	Colo..	2,000,000	2 000,000	1	.....	.....	.....	.....
43	Empire, S.	Utah.	10,000,000	100,000	100	*	.....	.....	.....
44	Eureka Tunnel, S. L.	Nev..	10,000,000	100,000	100	*	.....	.....	.....
45	Exchequer, S. G.	Nev..	10,000,000	100,000	100	940,000	Jan..	1892	.25
46	Found Treasure, G. &	Nev..	10,000,000	100,000	100	180,500	Jan..	1892	.50
47	Gogebic I. Syn., L. &	Wis..	5,600,000	200,000	25	.....	.....	.....	.....
48	Gold Cup, S.	Colo..	500,000	500,000	1	*	.....	.....	.....
49	Golden Era, S.	Mont.	1,000,000	200,000	10	*	.....	.....	.....
50	Gold Flat, G.	Cal	1,000,000	100,000	10	5,000	Mar..	1892	.05
51	Gold Rock, G.	Cal.	1,000,000	500,000	2	.....	.....	.....	.....
52	Golden FeatherCh., G	Cal...	900,000	180,000	5	.....	.....	.....	.....
53	Goodyear G. & L.	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01
54	Grand Duke, S.	Colo..	800,000	80,000	10	.....	.....	.....	.....
55	Gregory Con., G.	Mont.	3,000,000	300,000	10	.....	.....	.....	.....
56	Harlem M. & M. Co., G.	Cal...	1,000,000	200,000	5	.....	.....	.....	.....
57	Hartery Con., G.	Cal...	1,000,000	100,000	10	22,000	Oct..	1890	.05
58	Hartshorn, G. & L.	S. Dak	1,250,000	250,000	5	8 750	Sept.	1891	.00½
59	Head Cent. & Tr., S. &	Aris..	10,000,000	100,000	100	16,981	Mar..	1892	.05
60	Hector, G.	Cal...	1,500,000	300,000	5	45,000	Jan..	1889	.15
61	Himalaya, G. & L.	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00½
62	Holywood	Cal...	200,000	100,000	2	.....	.....	.....	.....
63	Huron, C.	Mich.	1,000,000	40,000	25	280,000	May.	1887	3.00
64	Idaho, G. &	Idaho	.250,000	250,000	5	.....	.....	.....	.....
65	Ingalls, G	Colo.	100,000	20,000	5	.....	.....	.....	.....
66	Ironton, I.	Wis..	1,000,000	40,000	25	.....	.....	.....	.....
67	Iroquois, C.	Mich..	1,250,000	50,000	25	.....	.....	.....	.....
68	Kentuck Con.	Nev..	10,500,000	105,000	00	57,750	July	1892	.10
69	Julia Con., G. & S.	Nev...	11,000,000	110,000	100	1,463,000	Jan..	1889	.10
70	Justice, G. & S.	Colo.	500,000	500,000	1	*	.....	.....	.....